**Last Call**

**INTERNATIONAL PHOTO PRIMULA SHOW**

In response to a number of requests the Photo Contest deadline was postponed to June 15, 1987, so that people could take advantage of this spring growing season to make fresh photographs for submission. That date is rapidly approaching and we are issuing this final reminder – that you get your pictures taken and in. The prizes are substantial – totalling about a thousand dollars – the rules are simple and few. We suggest that you get out your Spring 1986 issue of Primroses to refresh your memory on these, and then get your entries off as soon as you can.

Mail them to the

**Editor**
1236 Wendover Avenue
Rosemont, PA 19010 USA
In Memoriam

Members of the American Primrose Society will be saddened to hear of the death of Mary Zack on February 2 of this year. Mrs. Zack was one of two remaining charter members of our Society.

Born in Picture Rock, Pa. on November 26, 1897, Mary headed west in 1916. She and Otto Zack were married in Vancouver, B.C. and moved to Bailey St., where Otto built the house in which Mary lived until her death.

The older Zacks' son Otto and his wife Helen live in Portland, Oregon and have a son, Montgomery. One of Mary's favorite pastimes was cooking for her grandson.

For 21 years Mary worked for Northwest Natural Gas Company. Even after her retirement she continued to "look after" the plants at the company's offices. As a founding member of A.P.S. it is no surprise that Mary enjoyed working in her yard to the end. She always said that she felt best when she could get her hands into the dirt.

Among the many Society offices which she filled so ably were Treasurer, Director, Secretary, Regional Vice-President, Regional Editor (for twenty years) and President - both of A.P.S. itself, and of the Oregon Primrose Society chapter.

In Mary's honor, Ivanel Agee named a beautiful yellow self auricula "Mary Zack". This plant has been registered for a number of years, and has often been a blue ribbon winner.

All of us have benefitted from the life and efforts of this gracious lady. May the Lord grant her peace and rest.
Line Breeding—The Real Story

by Roy W. Preston
Seattle, WA

Plant breeding has been practised for hundreds of years, so most of the principles governing it have been known from some time, and many stud plants now available to professional growers are quite good.

Most of us however can only grow plants in our gardens (or if we are lucky, in a small greenhouse) so the choices available to us are limited. The main difference between the professional plant breeder and the amateur is the number of possible stud plants available to each, and the reasons each chooses the one he does. This choice is quite as important for the small grower as for the large. For the home grower it usually means he uses the plants that do the best for him, either in shows, or in his garden. This is a natural choice—and one quite easy to make. Here, however, is where most amateurs make their big mistake, because often that ‘best’ plant is a hybrid plant, and one should not use hybrid plants to start a breeding program. Much time and space is required when breeding with hybrid plants, which are the culmination of someone else’s breeding, and the seedlings of hybrids are seldom as good as the parents.

Nowadays, most breeding programs use inbreeding, beginning with strains that are already linebred. LINE BREEDING is the breeding together of closely related plants. We humans have been told that for us, line breeding is not good, and marriages between closely related people is either forbidden or frowned upon. For plants, however, most real advances have been made via line breeding, and all really successful programs have had line breeding as a cornerstone.

Line breeding offers several advantages to the plant breeder, but probably the most important is the possibility it offers of finding and then fixing recessive traits. Recessive traits are a basic fact of Mendelian genetics. They are those traits that the plant has but cannot express unless that trait has been inherited from both parents. Dominant traits on the other hand are always expressed, if present. So virtually all traits that a breeder will look for will be recessive, for if the trait is dominant and desirable it will be “in the line” already. For the plant breeder there is the constant attempt to “breed out” undesirable dominant traits and “breed in” desirable recessive ones.

A knowledge of Mendelian genetics is, of course, very useful if one is going to breed plants, and it is a fascinating subject in its own right. However, it is not essential. The important thing to remember is to start with a linebred strain and breed only with plants from that strain. If one rule is adhered to, then one’s instincts to breed the best to the best can usually be followed. After a long time of breeding, after many generations have passed, then the vigor of the line will slowly diminish and the plants and flowers will become smaller. This loss of vigor that results after many generations of line breeding is best seen in wild collected species. Here plants are limited by geography to breeding only with other plants that are close by, and therefore probably closely related to themselves. This loss of vigor from line breeding does not detract from its value as a breeding tool, especially since the vigor is easily restored by an outcross, when two unrelated strains or species are bred together. This outcross breeding is of the greatest value in line breeding because F1 hybrids are always obtained by breeding together two widely separate line bred strains. F1 hybrids always exhibit the advantage of greatly increased vigor. If one had a choice, one would breed would be F1 hybrids because of this remarkable increase in size and strength. However, it is very hard to keep two separate linebred strains, and then hand pollinate one to the other as is required for F1 hybrids.

So don’t hesitate to self-pollinate your best plant. Selling is the primary tool of the line breeder. If one should accidentally use a hybrid plant, then the seedlings will not look like the parent and will not be as good, a tip off to the original error. If one uses a linebred plant, then the seedlings will generally be as good as the parent, with perhaps a few better. Save and work with those, and you’ll be off to a flying start.
RA-PID-GRO®
Plant Food
To establish healthier, bigger and better plants, use RA-PID-GRO® Plant Food with FORTI-5™ micro-nutrients.

You CAN Grow Petiolaris Primulas
by Bob Coalby
Walsall, England

Over quite a number of years now, I have been successfully growing Petiolaris primulas in my garden in Walsall, a town situated in the centre of England, a region known as the “Black Country” from its association with coal-mining, iron and steel making, and engineering. Now that most of these activities have finished, nature has returned to heal the wounds of industry, and many of our native flora flourish once more. A mile and a half from my home cowslips (P. Veris), bluebells, and violets are found in abundance, growing along railway embankments, canal tow-paths, and disused limestone workings. In my garden I grow many primulas — European, Asiatic and American species — in rock garden, border and peat beds.

When I first began to grow Asiatic Primulas, I read, and was told by nurserymen and experienced growers, that Petiolaris Primroses would be difficult to establish in this area of England. It seemed to be a universally held opinion, that they grew best in Scotland, with poor results elsewhere. A mile and a half from my home cowslips (P. Veris), bluebells, and violets are found in abundance, growing along railway embankments, canal tow-paths, and disused limestone workings. In my garden I grow many primulas — European, Asiatic and American species — in rock garden, border and peat beds.

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The first two Petiolaris primroses I ever grew were two very small plants, one of P. gracilipes, and one of P. bhutanica, which I collected from a nursery on my way back from a holiday in Scotland. During the holiday my wife Joan and I had visited both the Edinburgh Botanical Gardens, and Branklyn Gardens, Perth, where we saw these plants growing well in peat beds planted beneath shrubs like Rhododendrons, Pieris, Magnolia etc. Fortunately, soon after buying them, we heard a talk, given during a meeting of our Midland Branch of the National Auricula and Primula Society, at Birmingham. The subject “Constructing a Peat Bed” was exactly what we needed. The talk was given by a young committee member called Howard Drury, who, it turned out had trained at Edinburgh.

Inspired by the challenge this of-
fered, I set about making my first peat bed, preparing to find out, by trial and error how best to grow my favourite plants. Remembering what had been done at Edinburgh, and what it looked like, I tried to imitate, in miniature, that type of landscape. Using peat blocks I terraced them down into a tiny “valley”, about a metre deep. This, of course, meant excavating the middle of the area out to the depth of a metre, and building up the other side, with more peat blocks, which I filled in with peat. All over the area, a stride apart, I put small platforms of paving stone, so that I could stand firmly on them, to weed and plant at any angle, without treading on the peat bed itself. This also provides stability for small lights to cover individual plants, or (hopefully) clumps of plants, for winter protection. At the top of these terraces, I planted spring bulbs, crocus, species tulips, and narcissi, and others, and the wet weather of that season soaked the peat bed well. My two little treasures I had planted at the base of the peat blocks, where they were shaded from the sun. In the same situation, I also planted P. florindae, P. alpicola, P. pulverulenta, P. juliae, and P. frondosa. About that time I also collected P. edgeworthii, P. whitei, P. bracieosa, P. boothii, and P. scapigera and extended them along the base of the peat bed terraces.

The first Winter brought its damp and cold, much rain and even snow, but I had already covered the plants with glass and they came to no harm. Indeed, by January, some of them were flowering. The only plant I found did not like this treatment was P. boothii. I have come to the conclusion that this species is not truly hardy, and in fact, read somewhere that it comes from further down the altitude range than most other Asiatic primulas. The experience of losing it that year, decided me when I next obtained it, to lift it from the garden in October, plant into a 4” pot in a soil-less ericaceous (lime-free) mixture, and keep in the Alpine house until the following March. I also tend to do this with my P. aureata, mainly because although I know it is hardy, I have found it responds so well to pot culture, and because of the outstanding beauty of its foliage, even during its rest-time. I like to have it there to cheer me in the depth of winter-time.

One thing must be borne in mind when growing Petiolaris primulas: They will not tolerate lime. So if there is any doubt or danger, it is as well to isolate the plants by under-lining them with polythene sheets. This, of course, is if you do not have a peat bed. The soil p.H. must be less than 7 or they are unlikely to thrive. The p.H. in my peat bed ranges from 6.0 to 6.6, and ever year I top up with a dressing of peat and leaf mould to about 1” and include approximately 1 ounce to the square yard of sterilized bone-meal.

From my first hit and miss attempts, I have learned to know my plants and their needs, and in fact, I now have three peat beds which take up a good third of the garden. The original plants, having grown and been split, are now good clumps in all peat beds. Having “got the bug” I began to look for more species to collect. I next acquired some of the dwarf Petiolaris species, P. deuterorana, small with fresh green crinkly leaves, and tiny pink cup-shaped flowers, with a distinct cream eye. Then came P. cunninghamii, and P. gracillipes ‘Minor’, these very similar, the only difference between them being a botanical one. Another such in “Linnet” which I ob-tained from Edrom Nurseries, of Eyemouth. More recently I was given P. boothii ‘Alba’, a pure white form, from a friend in Scotland, and a most beautiful Chinese form of P. son-chifolia, collected on an expedition to China in 1982-83 by members of the Scottish Rock Garden Club, and others from Edinburgh Botanical Gardens. This tends to be a paler blue flower than the ordinary P. son-chifolia but it has a deeper golden eye and a red stem to its leaves, which are flatter, and to me, more beautiful, since I consider it to be a very nice plant in leaf as well as in flower.
species are herbaceous, and the resting bud is found completely underground, as with the plants of the section Nivalis or the section Parryi. A word of caution here, be sure to mark the spot and do not try, as I did, to fill in a "bare" space with another rhododendron bush. There are three stages in the growth year of Petiolaris primroses. First the flowering stage, where the plants produce their new flowers, with little observable leaf growth. The second is the fruiting stage, when seed is produced and the leaves are extended into their Summer growth. The resting stage occurs in Autumn when they contract down into resting buds, or tight little farinose rosettes with the flowering buds already formed in the centre. This is the stage when the greatest care must be taken to protect them from those damp conditions where Botrytis can so easily set in.

About four years ago I read an article by Mr. Alf Evans, then Curator of Edinburgh Botanical Gardens. He mentioned that he believed that Petiolaris primroses, along with other Asiatic plants, grew better in close association one with another. I must agree with him, for I have found that my plants grow happily and profusely in close proximity.

Whenever or wherever I am asked to talk about these plants one question is always raised. How do I propagate, and which method do I find most successful? There are four approaches to this: a) division, b) from seed, c) by leaf cuttings, d) by layering. I would say that the most reliable method for me, as for most people is by division. I take one good clump, and pull it apart into its individual little plantlets. One can sometimes get as many as 15 to 20 plants from one clump. I twist off all the top growth with my hands, and plant the remaining crowns in a mixture of silver sand and soil-less compost, even parts. I keep it moist and well shaded until new growth appears from the crown, when they can be safely planted back into the peat bed. It is always possible, of course, to plant them back into your peat bed, but I say better safe than sorry. If I am lucky enough to get seed I collect and sow it as soon as it is ripe. However you do need to keep a careful eye on your seed pods as they have a very thin membrane which can disintegrate in a very short time, so that your precious seed is scattered and often lost. Sow any seed you may obtain in the same mixture mentioned above, which you have previously moistened well, in a seed tray which you will cover with a sheet of glass, and a piece of newspaper, and you should find that they begin to germinate in about a week from that time. I prick
mine out when they develop their second leaves. You can take leaf-cuttings from all the species in this section, with the exception of P. sonchifolia, and the herbaceous Petiolaris. At about the end of June, I take each plant and pull each leaf back from the base. At the bottom of the stalk you find that a tiny bud has grown. I insert these buds about a quarter of an inch deep, into the same basic sand mixture I have already given, then I cover with a piece of polythene or glass, until new growth begins from the basal bud, and proceed exactly as with seedlings. The layering approach I have used only with P. bracteosa, when I peg the bracts down into the peat, and sprinkle my sand mixture around it. When I can see they have rooted, I sever the stem and the plants grow on.

From my own experience I have discovered that all kinds of Primula species like peat bed conditions. The other Asiatic Primulas, the European species, the American ones all grow happily there. I mention in passing P. suffrutescens, which is now growing in its fifth year and doing very nicely. I would say honestly that yes, the Petiolarid primroses are a challenge for Primula growers, but not, I would say, more than many other kinds of Primula. The most important thing is the depth of care you are willing to give them. It is well worth finding out about them, discovering what conditions they like, experimenting within your own environment. Perhaps my way may not be yours, but your way could still work for you. So don't be afraid to have a go, they will grow happily in many places given shade and moisture . . . even in spite of you!

Dr. Michael A. Dirr, Associate Professor of Horticulture at the University of Georgia, recently published a very complete review article on propagation by rooting of cuttings, from which we have abstracted several tips.

First, where to find specific information on how to root cuttings? Plant Propagation: Principles and Practices, by H.J. Hartmann and D.E. Kester, now in its 4th edition, is the "bible" for plant propagators, in general. The Proceedings of the International Society of Plant Propagators, published annually, are useful for practical how-to data. And don't forget your local resources; the folks at extension offices, college horticulture departments, botanical gardens, and nurseries are often helpful.

Second, remember that plants are extremely variable in their abilities to root—some species appear impossible, while closely related species are easy. Even individual plants of a given species can exhibit vastly different propensities to root. Of course, smart commercial growers look for plants of a given kind that are easiest to root.

According to Dr. Dirr, many woody plants become much harder to root as the growing season progresses. In general, softwood stem cuttings (from new growth) taken in May, June, or July, are more likely to root than are semi-hardwood cuttings (often used for rooting broadleaved evergreens, such as rhododendrons) taken in late July through September, or hardwood cuttings taken later in the fall or in winter. Root cuttings should be taken as a last resort.

Typically, cuttings made nearer to a plant's roots are easier to root. The position of a cutting can also affect the form of the subsequent plant—upright plants come from cuttings taken from upright shoots; spreading plants come from cuttings taken from horizontal shoots (not a hard-and-fast rule, but a tendency).

Dr. Dirr has doubts about certain hypotheses regarding stimulation of rooting by "specially" fertilizing the mother plant. This doesn't mean that the mother plant's health should be
neglected, but that extra care needn’t be provided to achieve good success with rooting of cuttings.

In general, cuttings taken from younger plants are easier to root. Here is an area where treatment of the mother plant can make a big difference. Heavy pruning, with cuttings taken from resulting “sucker” growth, can lead to improved rooting by increasing the “juvenility factor” of the cuttings. Dr. Dirr says that juvenility can diminish rapidly as a plant grows; the easiest way to restore it is by forcing shoot growth with heavy pruning.

Timing is critical for good rooting of many plants. This factor must be determined through experience – either your own or some other experimenter’s. Check the literature first!

Wounding of cuttings to promote rooting is a controversial subject. Again, let the literature and your own experiences be the guides (and beware of those who extoll the virtues of wounding without having good data to back them up).

Two techniques for rooting otherwise difficult-to-root plants are girdling and etiolation. Shoots on a mother plant are girdled (either by a cut or by removing a small ring of bark), typically before spring growth, or in April, May, or June; the girdled area is treated with a plant hormone (see below), and then wrapped in moist sphagnum, plastic film, and aluminum foil to exclude light (etiolation); unwrapping should be done in about a month or two; the shoot is cut just below the girdle and stuck under mist for rooting. Girdling/etiolation seems to rejuvenate cuttings taken from mature trees.

Dr. Dirr favors a rooting medium of two parts perlite and one part peat (straight perlite for Magnolia grandiflora), though he notes that nurseries use various other mixes with good results. Deeper rooting containers make for better rooting; containers less than about 3” deep stay too wet.

Bottom heat (70 to 80 degrees F) can hasten the rooting process.

According to Dr. Dirr, “hormones” (rooting chemicals) provide a margin of safety in rooting easy plants and are likely to be essential for plants that are difficult to root. In experiments, he tries indolebutyric acid (IBA) first, then naphthaleneacetic acid (NAA); naphthaleneacetic acid (NAC) appears only marginally helpful. A good source: Research Organics, 4353 E. 49th St., Cleveland, OH 44125. (Note: Rooting chemicals such as IBA are considered “pesticides” by the U.S. Environmental Protection Agency, and products containing such chemicals must be registered with the E.P.A. It is illegal to use an unregistered “pesticide” in some states; look for an E.P.A. label on any “hormone” product you buy.) Dr. Dirr has found that liquid formulations of rooting chemicals are better than talc-based formulations, because the former are more easily absorbed by cuttings. However, ethyl or isopropyl alcohol, used as a solvent for IBA and NAA, can harm softwood and hardwood cuttings of some species, notably Calycanthus floridus (symptoms: stem end shriveling or browning a few days after sticking); then, talc formulations or potassium salts of IBA and NAA should be used.

Fertilization is another controversial subject. Some commercial propagators incorporate a slow-release fertilizer into the rooting medium at a rate of two to six pounds per cubic yard (for example, Osmocote 18-6-12). Cuttings do not take up fertilizer until roots have formed, and it appears that early fertilization has no advantages over top-dressing as the roots emerge or adding liquid fertilizer at low rates in irrigation water. One researcher reports good results with Osmocote 18-6-12 at sticking or when roots emerge, applied as a top-dressing at a rate of ¼ to ½ ounce per square foot. But other researchers have shown a correlation between nitrogen fertilizer during and after rooting with decline and death of rooted cuttings being overwintered.

Supplemental lighting (continuous or turned off between 10 PM and 2 AM) may promote shoot growth after rooting. One 60- or 75-watt bulb located about a yard above the cuttings should be enough. This light isn’t for photosynthesis, but to increase growth promoters (and/or to reduce growth inhibitors).

For some plants, removal of leaves after rooting can help to stimulate new shoot growth. Leaves produce shoot inhibitors (probably abscisic acid) in the maples, for example. Dr. Dirr suggests that difficult-to-overwinter rooted cuttings be left in place for storage at 33 to 40 degrees F. Any mechanical disturbance to the newly formed root systems leads to difficulties in overwintering.

The overall key to successful cutting propagation is paying attention to detail. There is no substitute for hands-on experience – but you can learn a lot from the successes and failures of others.

(Incidentally, Dr. Dirr’s Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses, now in its third edition (Stipes Publishing Co., 10-12 Chester St., Champaign, IL 61820), is one of the best sources of information on propagation of woody ornamentals – a veritable gold mine of data that we find indispensable in our work.)

This springtime will bring to the English a good measure of heartache and uncertainty, but it also brings, with the certainty of the centuries, the wistful beauty of "Pretty Bird E'en," the Birdseye primrose.

Long before the Druid high priestess' murmured incantations over the sacred mistletoe, the Birdseye primrose veiled the highlands in a rosy mist, and today they dance over the hills with precisely the same grace, permeating the hearts of the English with the very quintessence of England. As many eons from now the winds will carry the same delicate fragrance over the same old hills to inspire a free people in the same old way.

The Birdseye primrose, Primula farinosa, is native to the northern counties and parts of Southern Scotland, growing in abundance in the Craven highlands and Westmoreland.

With its rosettes of gray, mealy foliage the tall scapes powdered white carrying loose, round heads of heliotrope or pink flowers, it clothes the bare railway cuts, colonizes along roadsides and takes complete possession of grassy meadows and marshes.

Primarily an alpine, it follows the alpine habit of rushing into flower with the first thawing breeze and when the upper hills are a sheet of pink and lavender not a bud is yet to be seen in the valleys below.

Gloomy tales have been whispered against P. farinosa, that it is hard to please, that it is very apt to depart to the unknown in spite of lavish attentions.

But the coddling and loving isolation to which it is usually condemned are the very reasons for its pining away. Comradeship seems the answer, for when planted in heavy rich, well-drained soil in close proximity to kindred companions, with perhaps, some sheep fescue grass sown over so that the roots might twine and mat, and copious quantities of water until blooming time, the winsome Birdseye primrose will establish itself and live happily ever after.

Of the six species belonging to the farinosae section of the primrose family, two Balkan beauties are worthy of a consideration that leads to direct acquaintance. P. frondosa comes from Northern Thrace, supposedly the home of the mythological founders of Greek poetry, music and philosophy.

There in the mountains it sits cozily among the damp rocks wet with melting snows, a thing of color harmony and graceful rhythm. Varying greatly from seed and from dissimilar cultural conditions, it grows in shades of pink, rose and violet with innumerable scapes all mealy white topped by large, loose umbels of scalloped primrose blossoms that spray out in a most delicate fashion.

It is more on the plump side than P. farinosa, the leaves being wider and longer, but if it lacks something of the birdseye daintiness it also lacks its fastidiousness of temperament. For it grows freely in any light, well-drained soil in a partially shaded position if kept moist in the summer and not allowed to sit in puddles during the winter.

Toy Horn Tube

P. longiflora is self-descriptive, literally "long flower," and indeed the entire blossom with its very long tube is not unlike a toy horn. The small, narrow pale green leaves stand almost straight up and the miniature rosette seems quite incapable of supporting the stout stalk which, like the others, is densely coated with meal.

Crowning the sturdy scape is the umbel of rosy-lilac flowers with a purplish-pink trumpet, the inside of which is golden like the eye.

Longiflora sends out its long bugled stars in July and August and continues to show off periodically throughout the fall until winter puts an end to its charming folly.

If its crown is protected from winter wet it will move into your garden and settle very contentedly in quite a sunny position, provided the roots are cool and plenty of moisture is provided.

Longiflora rambles over the Balkans from the brilliant glaciers of the Austrian Alps through Bosnia and far away to the Caucasus and adds humor and whimsy to the farina-covered group of the primrose family.
That Pest – The Vine Weevil

Otiorhynchus Sulcatus

by Richard M. Trezise
Bridelington, England

The Vine Weevil belongs to the family Curculionidae often called the Snout Weevils. A look at almost any picture of Weevils shows the reason for this description.

In mainland Europe and the U.K. there are approximately 1200 species to be found, over 400 of them in the U.K. alone.

The particular species that concerns most Primula growers is the Vine Weevil or Black Vine Weevil also called Otiorhynchus sulcatus, three different names for the same creature. They are parthenogenetic; that is to say, the females produce fertile eggs. Indeed, most experts believe that a male vine weevil is unknown. Some gardeners are extremely fortunate and go through their entire gardening life and either never notice this weevil or it occurs in such small numbers and so infrequently that it is never a problem to them. Or they may grow plants which the weevil does not care for, and it departs to better living quarters.

It is a pest both in the open ground, gardens, allotments and fields, and also under glass, both greenhouse, and cold frames. It can and does live indoors, in the house, if there are pot plants that it can feed on.

It appears to be indifferent to weather conditions, as neither hard frost nor warm conditions discourage it. The adult weevil is in fact a rather handsome creature, it measures approximately one third of an inch in length and is very dark brown with the back having an appearance of being sprinkled with gold dust (that is, if it is seen in strong sunlight; though it is if anything inclined to be nocturnal and more often seen in the evening or night time. They are wingless. During the daytime it usually hides under seed boxes, plant pots, or any convenient cracks or crevices that it can find. Evidence of its nocturnal visits to the plants can be found, this usually takes the form of roughly semi curricular bites taken out of the leaves or flowers. The adult’s active period is usually from late Winter through Summer, when it lays its eggs below soil level round the neck of the plant usually between July and September. It is the weevil larvae that are by far the greatest menace to the gardener, both amateur and professional. The larvae develop during the Autumn and Winter, and start to eat...
plant roots during Winter, so that by Spring much damage has already been done. They are best described as being ¼” to ½” in length, usually curled round like a letter ‘C’, and are a creamy white colour with a distinct brown head. And they are legless. They appear to have an insatiable appetite for the roots of many plants. Personal experience has shown that they will eat, and usually kill, if not discovered in time, the following plants, Primroses, Polyanthus, Aubrietas, Vines, Strawberries, Sedum, Begonias, Cyclamen (both hardy outdoor and the more tender indoor varieties) and lilies.

Some 20/25 years ago they were not usually regarded as a particularly serious past, but they are now beginning to make their presence felt in the commercial strawberry fields and also to some extent in commercial raspberry fields – though in 1865 the Vine Weevil and the Clay Coloured Weevil (Otiorhynchus picipes) was reported as causing considerable damage to twelve acres of mangolds in England.

Usually the first evidence of infestation of Vine Weevil is found in the Spring just at the time when young (and not so young) Primulas are starting into growth. At first all may appear well, but it soon becomes apparent that the affected plant fails to grow away at the same rate as the non-affected plants. If Weevil has not been encountered before, and is not suspected, the usual remedy for a flagging plant is to water it, sometimes this will produce a temporary revival – the leaves pick up and the plant appears to be healthy. However, within a few days the plant has again gone limp, and the remedy appears to be more water. This may or may not revive the plant again. This process of flagging and reviving with water may be carried on several times until the point is reached when a further watering has no effect on the plant. If at this point the plant is knocked out of the pot or lifted from the open ground it will usually be found to have little or no root system left. Further very careful investigation of the compost in the pot will usually reveal the Vine Weevil grubs – the answer to what has caused the plant to wilt is now easy to see. The first remedy is to stand on the grubs and ensure that they are killed, the second remedy is to burn the potting soil or compost along with other garden rubbish and so ensure that any remaining small grubs or eggs are completely destroyed – on no account should the old potting soil or compost be re-used. The next thing that must be done is to thoroughly wash and sterilise the pots that have had infected plants in them, either by scalding (if clay pots) or warm water and a disinfectant if plastic pots. These should then be rinsed in clean water and allowed to dry thoroughly. If the infected plant has any root left it, too, should be well washed and repotted in a clean pot using fresh compost, but it will take time to make anything like a decent sized plant, and unless it is a variety which the grower particularly wishes to keep going, it is not really worth the trouble. The best thing to do in those circumstances is to burn the plant, obtain new seed, and start all over again. Any grower who has had the misfortune to find that Vine Weevil has got into his garden soil faces an almost impossible task of trying to eradicate the pest, and probably the best that he can hope for is to obtain some measure of control over it. Clearly measures must be taken from the first to try to overcome the problems. What then can be done to keep the pest to manageable levels?

First and foremost, strict attention to garden/glasshouse hygiene. Do not leave dead, decaying or diseased plants about; burn or compost them. Keep all pots and seed boxes clean and if possible out of the greenhouse, thus trying to remove the hiding places of the adult weevils.

When potting or planting out Primulas (or any other plant at risk) use Aldrin in the potting compost or a few crystals of Paradichlorobenzene (PDCB for short). This chemical is usually found in clothes moth repellent. A few crystals at the bottom of the pot and a few round the neck of the plant will usually keep the adult weevil away, it has a strong unpleasant smell which converts to a gas and permeates the soil. Naphthalene flakes or crystals are said to have the same effect. It does not appear to kill the
Weevil but they find the smell unpleasant and so leave the plants alone. Some writers claim that for a time the use of this chemical PDCB retards the growth of the plant but it will in time grow away normally. It may be said in passing that this treatment is a remedy against root aphid in primulas too. HCH (Gamma BHC) is also of use, this should be mixed according to manufacturers recommended strength and the plants thoroughly watered with it, including spraying it all over the foliage. This will often have the desired effect on the grubs, but is not all that effective against the adult Weevil. Derris powder mixed with the potting compost is also said to be an effective deterrent but may be slow to work. A form of biological control is now being tried: a type of eel worm which does not affect the plants but affects the Vine Weevil grubs and kills them, this process is self repeating so long as there are Vine Weevil grubs in the soil and the soil temperature remains at 55°F. or higher.

An old fashioned method of trapping adult weevils in the greenhouse used to be to take a sheet of paper which is made sticky with paste or treacle and a torch, when it is dark. Place the sheet of paper on the bench or floor of the greenhouse. With care pick up the plant in its pot, hold it over the sticky paper and shine the light amongst the leaves. The adult vine weevil does not like the light and will usually drop off the plant onto the sticky paper. This method has obvious problems but may be worth trying, though it could take time if several hundred plants are grown in pots! Another method is to leave rolled up pieces of cardboard amongst the pots on the greenhouse bench and the Vine Weevil will often go into them during the day. These cardboard tubes can be shaken over a bucket of hot water and many weevils may be caught and killed this way. This method can of course be used to trap earwigs and woodlice. The traps must be inspected daily. The adult weevil when disturbed usually remains still, as if dead, but the finder of such “dead” weevils should move the plant onto the sticky paper. This method has overcome several problems but may be worth trying. Adult weevils in the greenhouse are Vine Weevil grubs in the soil and the problem starts all over again.

These then are a few of the remedies that are most commonly encountered in various books on gardening. There are other chemical remedies that are obtainable by the professional gardener, or commercial grower, but not available to the amateur. However, the writer has discussed the problem with a number of growers and exhibitors and to date there does not seem to be any certain way of eradicating the pest. From an ecological viewpoint it may be said that the weevil should not be eradicated completely because of the problem of upsetting the balance of nature, but that is another matter entirely.

It seems almost self-evident that this weevil along with almost all other creatures will have a natural predator. But its success in asexual reproduction and its considerable rate of spreading might lead one to wonder what that natural predator is. Indeed, if over the years, the weevil has to some extent been controlled by a natural predator what is the predator, and why is it not now controlling the weevil as it once did? Could it be that this predator has itself become the victim of chemical control, or is it not as successful in reproduction and spreading as is the weevil?

Few things put more stress on a solid marriage than a disagreement about gardening practices. The best that can be said about “the great primrose bed controversy” is that the marriage survived, probably due to the fact that the primroses thrive . . . but I get ahead of my story.

My husband, Fred and I have belonged to the American Primrose Society for years, as we belong to almost every outdoor plant society that exists, and have taken a fairly active part in society activities. That is, we have attended fairly regularly the one east coast meeting that was scheduled each year. The meetings are usually scheduled in May (not a slow month for gardeners so a lot of careful scheduling has to be done) and meeting places range from upstate N.Y. and mid-eastern Maine to the Philadelphia area with N.H., Vermont and Connecticut meetings thrown in here and there. Long Island doesn’t have a large Primrose Society membership (I think there were four of us at that time), but in 1983 the annual meeting was held in Bohemia, Long Island, hosted by a gardening friend, Lou Hindla, one of the four.

Fred and I had seen some really outstanding primrose gardens in our travels and we had been severely bitten by the primrose bug. We weren’t anticipating growing esoteric primroses, but felt a great desire to succeed with just some of the polyanthus, japonicas in wet places, sieboldii and maybe a denticulata here or there. Primroses aren’t easy to grow on Long Island. The soil for the most part is too sandy and well-drained, the summers are too hot and humid and frequently have too little rainfall, while winters don’t regularly provide that nice temperature-modulating snow cover that primroses love. (They plant in the summer and heave in the winter.)

Our dear 85 year young friend, Marilyn Held, can grow them, of course, and she lives right in Locust Valley as we do, but that doesn’t really prove anything. To begin with Marilyn can grow anything; she manages four working compost piles that provide her with tons of organic matter for her soil and she has a really good, vigorous polyantha form that out-performs every other primrose I’ve ever seen on Long Island. Marilyn is not only a fantastic gardener, she is incredibly generous. She certainly has done more than her share to help us. She has brought us primroses after primrose only to watch them dwindle over the years and finally die. I’m pretty sure she used to come over to our garden during the day and replace the ones that were heading down hill just to keep our spirits up, but I can’t honestly swear to that because I work full time (a terrible inconvenience, by the way, for a dyed-in-the-wool gardener). Back to the meeting in Bohemia . . . .

Two auspicious things happened at that meeting. Chris Fendersen, who at that time was the national treasurer of A.P.S. and “prime mover” of the eastern region, came down from his
time actually increasing soil aeration and improving drainage. Their gardening applications, both indoors and out, are many — use them to store water at the root zone of newly planted sod, use them in a seed bed where they will hold a layer of water next to the emerging seedlings, use them to improve the water holding capacity of sandy soils, or mix them into potting soil and use them to store large quantities of available water for container-grown plants both indoors and out. It was the “improve the water holding capacity so sandy soils” that hooked me, although the rest of the article proved fascinating reading — especially the part that read “these products can absorb from 200 to 3300 times their own weight in water”. It would take years for me to incorporate enough decayed organic matter into my soil to equal the water and nutrient holding capacity of Marilyn’s, but maybe I could accomplish much the same effect with super-absorbents. I’m sure we both read the article and that I mentioned to Fred that a super-absorbent sounded like a marvelous new product and didn’t it seem like an ideal additive for a primrose bed, but I’m not really positive. The older our marriage gets, the more erratic is the success of our verbal communication. A hug, a nod of the head, a shrug of the shoulders, does well for day-to-day conversation, but isn’t quite adequate for transmitting the idea of applying super-absorbents to a primrose bed.

Early one fine morning shortly after the L.I. primrose meeting, Fred announced to me that he had purchased all of the necessary materials and that he was taking that day off from work to dig the new primrose bed. I suppose it should have come as no surprise to me that he didn’t mention a super-absorbent in the list of materials. Our relationship frayed somewhat along the edges during the next five or ten minutes as I reminded him of the marvels of super-absorbents and our decision to use them for primroses. He firmly pointed out to me that he never remembered any such decision, we didn’t know they were marvelous, he didn’t have any or know where to get any and he was dressed and ready to go out and dig NOW! The upshot of the conversation was that if I could find a super-absorbent source, he would go, purchase it and add it to his list of primrose materials. After a rather lengthy phone call, I told Fred that Slater Supply, our local source of all things horticultural, had Planta-Gel available for sale at $85 for a 15 pound box. I carried out my end of the bargain, and acknowledging a definite chill in the air, skulked off to Planting Fields Arboretum where I work, knowing full well that Fred had no desire to waste half the day driving back and forth to Amityville for Planta-Gel. It’s a good thing for married gardeners that digging is so therapeutic. By the time I got home from work, Fred was eager to show me the freshly planted primroses and to tell me about the goodness of their beautiful fluffy bed. It was double-dug, of course, and contained, a bale of peat moss, two bags of Bouvung, super phosphate and 5-10-5, AND ½ box of Planta-Gel applied at the recommended rate. The Planta-Gel looked a little bit like medium grade Perlite and as it began to get dark we could just see little specks of it in the soil as we carefully watered in the new little plantlet.

Would that that were the end of the tale . . .

About three nights later, it rained hard, but for the most part it had cleared up by morning. As I walked dotted here and there in the bed like tiny green islands and the whole area jiggled when struck by the last few drops of falling rain. As I stood there trying not to giggle, I knew I was confronting the end of a 30 year marriage. When I scratched his grand piano, Fred forgave me; when Lori wasn’t born with beagle ears, he forgave me; (He loved our beagle and she used to sleep between us.) when I chased his son with a butcher knife, he forgave me; when I broke his favorite truel, he forgave me; but this . . . never!

Let it be said for the record that although the primroses looked ridiculous, they acted as happy as clams and they have continued to perform splendidly since that day — no doubt why I was forgiven once more.

That evening we carefully dug most of the super-absorbent back into the soil vowing to cut down on the recommended rate in later applications. The primroses thrived in their new home (all except the denticulatas; they still die) and we have since then dug three more beds with less super-absorbent but with the same success. I’ve started moving wildflowers and ferns into beds dug with a super-absorbent and they are all growing much better. We’ve also used super-absorbent in the bottom of rhododendron holes to help the roots get through the shock of transplanting more easily.

Why aren’t more gardeners using super-absorbents? Few people know about them; they are very expensive, and they probably will have to be specially ordered from a wholesaler. The applications are endless and the opportunities of succeeding with plants otherwise ungrowable are challenging. I won’t guarantee your marriage will survive, but perhaps you should give super-absorbents a try.
out towards the primrose bed I noticed in the path gobbits of stuff that looked like a cross between frogs’ eggs and tapioca pudding. “Probably rain worm excrement,” I muttered as I neared the primrose bed. In horror I realized my mistake, for the whole primrose bed was covered with about an inch of this jelly-like goo and I recognized it for what it was, super-absorbent that had super absorbed. The primroses were
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by

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