ENJOY SWEET PEAS

THE NATIONAL SWEET PEA SOCIETY

Plate i: Old Fashioned Sweet Pea 'Prima Donna'.

ENJOY SWEET PEAS

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Front cover illustration: **"Lady Susan, Eclipse and Lilac Ripple"** by Lorna Minton ©

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Plate ii: Lathyrus Rotundifolius.

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Introduction

Sweet Peas. The very name of this flowering plant can bring back vivid memories of the summer months. Thoughts of warm summer days, the buzz of insects, the song of birds, the colours of the floral borders of the garden, but most of all, the memory of the scent of the Sweet Peas climbing up towards the blue sky. Summer is also remembered for the horticultural shows, from the local village event to the extensive exhibitions of Chelsea Flower Show, Hampton Court, and many others. At all of these events you hear the crowds of visitors comment, "Oh! Smell those Sweet Peas!" No wonder that Sweet Peas are justifiably a firm favourite for the gardener, flower arranger and show enthusiast alike.

We hope that the information and ideas offered in this booklet will help fellow gardeners to grow and enjoy Sweet Peas through many long and happy summer months.

Plate iii: Modern Grandiflora 'High Scent'.

The National Sweet Pea Society

Patron

Alan Titchmarsh MBE

The National Sweet Pea Society, (N. S. P. S.), was founded in 1900. It has always maintained the objectives of encouraging the cultivation and breeding of good cultivars of the Sweet Pea. More recently there has also been an increasing interest in the species of the Lathyrus genus, but *Lathyrus odoratus*, the true Sweet Pea, still remains the dominant member.

In the Spring of each year the Society publishes its journal, the **Sweet Pea Annual** which is sent free to all members. This volume contains a vast amount of information, invaluable to Sweet Pea lovers, covering reports of the activities of the Society, the meetings that have been held, shows and exhibitions that were staged in the previous year, articles on new and old methods of cultivation, staging or arranging flowers, details of new cultivars, reports from the regions and from the trial grounds; together with programmes of future events. Its contributors, from every walk of life, range from the experts with many years experience, to novices who are reporting their first time experiences and experiments into Sweet Pea cultivation.

Bulletins with items of news, interesting topics and articles are issued regularly to members of the Society.

A **Classification List** is issued to members of the Society each year and this explains the colour grouping of all the cultivars that are commercially available. In this listing all the names of cultivars of white, cream, lavender, or pink etc. are printed in alphabetical order under their classification number, together with an indication of where such stocks of seed may be purchased. Many of these seed suppliers have generously supported this booklet and their advertisements feature within its pages.

One of the highly valued features of the Society is the opportunity it offers members, at shows, meetings and other gatherings, to meet fellow members and discuss Sweet Peas and other aspects of their cultivation. An important point is that the country is covered by a large number of District Representatives who organise lectures and social functions for other members in their own region. These events have become very popular and it can be truthfully said that members are friendly and helpful to each other.

Each year the National Sweet Pea Society organises two major National Exhibitions. These shows are held at venues around the country to try to give all members the chance to visit or to take part at the various levels of competition, from raw novice to seasoned expert. They are very popular with Sweet Pea enthusiasts, and the cups, trophies, medals and awards for the different classes are keenly contested; but always in a friendly spirit.

For many years the Society has held trials of newly raised cultivars in comparison with older established ones.

No formal election for membership of the National Sweet Pea Society is required, and, in addition to ordinary membership, there is provision for those who would like to become Vice-Presidents or Life Members; Senior Citizens are catered for at a special rate. Local horticultural societies may also become affiliated to the N. S. P. S. with all the privileges of normal membership and the bonus of special prizes for Sweet Pea exhibits at their annual shows. An application form, which provides all the relevant details, is available from the Honorary Secretary.

Further details of all these activities of the Society are listed on the web site at www.sweetpeas.org.uk

Enjoy growing your own Sweet Peas!

Plate iv: Spencer Sweet Pea 'Sir Jimmy Shand'.

Objectives of this booklet

The original booklet published by the National Sweet Peas Society giving advice to gardeners just starting to grow Sweet Peas was a reprint of an article that had appeared in an edition of the Sweet Pea Annual. It was entitled “Sweet Peas for the Beginner”, and was written by three experts, Messrs Burt, Gower and Janes.

This short booklet was expanded in 1946 by R G E Willison, who was then chairman of the Society, under the title of “How to Grow Sweet Peas”, with a second edition being issued in 1950.

Bernard Jones edited and revised the booklet in 1956 as the third edition, with further updates in 1971, 1978 1986 and 1995.

Simon Smith took over as editor for the eighth edition, when the title changed again to “Enjoy Sweet Peas” and now in 2008 the National Sweet Pea Society brings its publication into the modern era with the addition of illustrations to supplement the text.

As an introduction to the original “How to Grow” booklet, R G E Willison wrote:

“Here are recorded the methods used by Britain's best known growers, both trade and amateur, in the production of the highest quality Sweet Peas for exhibition and decorative purposes. If you believe that the magnificent blooms to be seen at the N. S. P. S. Exhibitions are the result of secret methods or something "they" can buy and you cannot - be it seeds, plants, sprays or manures, forget the idea! First-class blooms are the result of close observation, intelligent regular attention and first-hand experience.

Herewith are supplied the basic facts to guide you; experience you will acquire for yourself as you go along. You will find that you are not dealing with an exact science where everyone agrees, and fortunately there is still room for considerable divergence of opinion amongst equally successful cultivators on accepted facts; this makes for continued interest, and attention has been drawn to these differences as they arise.

This booklet is addressed-

(a) firstly, to the novice who hopes to grow Sweet Peas for home decoration and personal satisfaction and to enter competitions of good exhibition standard;

(b) secondly, to the grower who has a little more experience, for use as a "self-help", a tutorial booklet, to which he or she will be able to turn when in difficulty; and

(c) thirdly, to the most numerous class of all, those people who are not ambitious to have their names blazoned on Prize Cards but merely wish to grow blooms of high quality for the best of all possible reasons - to please themselves, their families and friends, and enrich their lives in so doing.

Every endeavour has been made to render explanations clearly and use key

words with accuracy. An appropriate index is provided which has been augmented by a short *glossary* of important technical terms and references.

Finally, if at first glance the contents appear a little formidable, just bear in mind what is intended here, i.e. an easily read and understood guide to the cultivation of this loveliest of flowers, whether for the higher class, exhibition quality bloom, or just for the more general attractive cut flowers which provide such a veritable feast of colour be it in the garden, in vases and bowls indoors, or on the show bench. Do not be intimidated - you'll be surprised how good blooms can inspire increasing confidence, so that in a couple of seasons you will be wondering what the fuss was all about".

Now, sixty years later in 2008, these sentiments still hold true!

R G E W, B R J & S E G S

Please note:

The designation **"Cultivar"** is now officially employed in horticulture for the naming of distinct new *Lathyrus odoratus*, Sweet Pea seedlings, in place of the older term **"Variety"**. This revised terminology is now used in this Edition of our handbook.

The use of the Imperial System of weights and measures is retained in this edition of the booklet, as it still aptly fits the size designation of plant pots, length of bamboo canes, etc. but a conversion table to the Metric System is to be found as Appendix 1 at the end of the booklet.

Plate v: Spencer Sweet Peas featuring the pink flake 'Pearl Anniversary'.

Making a start

Basic points for consideration

As with any gardening decision, the proposal to grow Sweet Peas requires some planning and forethought. Yes, one can, on the spur of the moment, purchase a packet of mixed seeds, or visit the local garden centre and collect some seedling plants that will give acceptable results of a few flowers for picking and display. However, to achieve results that are a little more spectacular, pleasing, rewarding and perhaps worthy of exhibition, plans and decisions have to be made in advance and put into operation in a logical order.

Firstly you will need to decide whether you are going to grow your plants in the **Natural fashion**, also known as the **Decorative method**, or on the **Cordon system**. In cordon growing, the plant is grown and restricted to a single main stem, or "haulm", with the side shoots and tendrils removed on a regular basis. This method is invariably used for exhibition culture of the modern Spencer cultivars as it produces blooms of the highest quality. The Decorative system allows the plants to grow quite freely and luxuriantly, more or less without restriction. Throughout this booklet directions are given for each of these basic methods, but at the outset it must be stressed that there are no hard and fast rules for the cultivation of Sweet Peas. The gardener is free to alter and adapt methods to suit his needs, preferences, geographical location, or to experiment in order to improve on the established principles. For instance it is not necessary to even have a garden to enjoy Sweet Peas; the blooms can be purchased from florists during the summer season and used for their decorative effect. Later in the booklet we will discuss the floral art side of the flowers' role.

There are other gardeners with only a window box or small patio with a selection of containers for plants. For this situation there are special cultivars of Sweet Peas, dwarf ones, to occupy the patio pots mixed with a background of some of the taller growing cultivars scrambling up a trellis behind. For best results, the optimum site has to be allocated to the plants, remembering that they are rapidly growing annuals requiring light, warmth and moisture in balanced amounts. At this stage the gardener also has to consider how many plantlets can be successfully raised for setting out in the space available and, more importantly, how many mature plants can be coped with properly during the growing season in the available spare time that modern life now gives.

In short, it is better to lift a pencil before lifting a spade and to sit down and plan ahead. Note down as you read through this booklet those things you have to do or obtain and when these actions have to be taken. You will soon get an orderly sequence in mind, which will enable you to do the priorities first and not miss any of the essential actions. It is advisable to keep a good record of what you actually do, when you did it and the results obtained. Memory can be fallible, but your written record will be invaluable to you in subsequent seasons, especially if you also note down remarks on the weather, the progress and

success of the plants of various cultivars, together with comments for the next season on how you might improve matters, etc.

Choosing the site

For growing by the Cordon method

Sweet Peas, you may have noticed, will grow almost anywhere, even on poor soil and in unfavourable sites. In fact there are few flowers that are so accommodating, but they do respond in spectacular fashion to good conditions. You should therefore do the very best you can for them in selecting the site. You are indeed fortunate if you are able to select the ideal one where the land is fairly level, the rows of plants can run from north to south, with deep soil of medium loam composition. Sweet Peas also like an open site, both in gardens and allotments, which is airy and unshaded in an arc from the north-east, (where the summer sun rises) right round by the south to the north-west. All the better if there is some shelter from the wind to the north and north-east of the plot, provided that this protection is not too close or overhanging, or causes wind eddies or wind funnelling. These are the optimum conditions, but if all the options cannot be met you should not worry unduly, but choose the site that most closely fills these requirements.

For growing by the Natural method for garden display and home decoration

For naturally grown rows or clumps of Sweet Peas, the "ideal" site as described above is of course the best, but you need not be so fussy about this as compared with growing for exhibition purposes. Indeed, a row of Sweet Peas can be used as a floral hedge, or a clump of plants used to make a focal point in the garden. Otherwise you may wish them to be near the house or patio to provide scent as well as colour. Also framing a pathway, over an arbour, scrambling through other tall growing shrubs integrated into an herbaceous border, or on the face of a tall evergreen hedge; really the opportunities are numerous and here the imagination and experimentation of the gardener will pay dividends. Just remember that the more light and air they receive, with adequate moisture at their roots, then the better they will thrive.

Site layout

How many plants can be grown in a given area – Cordon Method?

It is the general practice to grow the plants in double rows using canes 6 to 8 feet high with the two rows separated by a distance of 12 to 18 inches apart at the base and the canes usually canted in at the top where they may be 9 to 15 inches apart. Some gardeners find they prefer to have their canes vertically placed and others vary the procedure by planting their Sweet Peas in a single row and then canting the canes out from the vertical for every other plant to a distance of about 12 inches apart at the top. In all these cases the lines of plants and their canes are supported on a grid of horizontal wires from robust end

posts and intervening posts set at intervals of about 3 to 4 yards. These posts carry cross pieces of the required length to support the horizontal wires. Remember that a row of mature Sweet Peas coming to the top of their canes may need to resist summer gale force winds, so the end posts and interval supports should be well embedded into the ground at the start of operations. Some growers add the extra security of a second straining wire between the end posts at a level of about half way up the canes. The number of plants that can be accommodated on a given area can easily be calculated, as each double row of 5 yards will take 44 plants using 8 inch spacing between the plants.

A distance of about 3 to 4 feet is required between parallel successive double rows of Sweet Peas and their supporting canes for the gardener to work efficiently on a pathway and avoid damaging the crop on either side and also to ensure good light penetration to the lower parts of the plants. Four double rows could thus be fitted onto a plot 7 yards wide and this would mean a total of about 176 plants could be grown on the 5 x 7 yard area. Of course the gardener can select to grow his plants closer together or further apart depending on the area of land available, or for the distance between the rows to be wider or narrower. However, it is sensible to leave plenty of room for the manipulation of the plants and to allow light and air to percolate through the crop. Always be generous with the spacings if possible.

How many plants can be grown in a given area – Natural or Decorative method.

When plants are grown for garden decoration or to provide cut flowers for the house they should still be planted about 8 inches apart. Clumps of plants are excellent in this fashion with 6 or 8 plants in a circle able to scramble up a wigwam of bamboo canes, or hazel branches. Enough room should be left between the clumps to be able to attend them, tie them in, pick them and enjoy their beauty during the summer growing season. Perhaps 24 inch spacing between clumps would be adequate.

If a living fence of Sweet Peas is required, (as in Plate 14), then a framework of end posts and central supporting posts to a network of wire netting, nylon mesh netting, canes, or hazel branches is set up. The young Sweet Pea plants are then set out at intervals of 6 to 8 inches on either side of the framework. The length of the structure indicates the number of plants that will be required.

Selecting the cultivars and purchasing the seed

Having determined how many plants you can tend and care for, or which will fill the allotted available area, the next decision is a consideration of how many different cultivars you intend to grow. Whilst packets of seed in mixed colours are available, many growers will want to select named cultivars in a range of colours. To assist with this question the new grower (and the established devotee) will find the **"Classification List of Spencer Sweet Peas"** an invaluable

guide. This list is published each year by the National Sweet Pea Society as a supplement to the **"Schedule of Exhibitions"** booklet. Different colours of Spencer Sweet Peas are given classification numbers and each cultivar in commercial production is listed under the number and colour to which it matches nearest. In the text of the Classification List all the White cultivars are listed under their section, as are all the Lavender cultivars or all the Picotee ones under their respective headings. Each year the latest "Novelties" are also grouped as a separate list with their colours described as given by the respective raisers or suppliers.

To complement the list of Spencer cultivars, the Classification List also has a section on "Old Fashioned" cultivars. These are the types from the preSpencer era which are popular for their scent and their floriferous nature, with an easy-to-grow nature.

Reference to the Classification List will ensure that colours are not duplicated when choosing a range of cultivars. This is important to the enthusiastic exhibitor who wants distinct colours to select from for multi-vase classes in shows, and equally to the floral art arranger who wants a harmonious blend of colours.

The gardeners growing for their own satisfaction may decide that they want their Sweet Peas for a season to be all from one range of a colour, perhaps pink for instance. The Classification List will again be of help to list the shades of pink available.

Not all the cultivars detailed in the Classification List will make top class exhibition types, because of size, duplex characters, etc. so the exhibitor grower will wish to know which cultivars are most popular on the show bench. This information is also published by the National Sweet Pea Society, either in the Society's "Annual", or one of the Bulletins. An "Audit of Sweet Peas" is collated to give the results of the two National shows listing each cultivar exhibited and the number of times it was placed for first, second, or third prize, together with the total of non-winning vases exhibited. This gives a true indication of the popularity of different cultivars with the leading exhibitors.

Results of the comparative trials between seedling and established cultivars which are grown by Royal Horticultural Society/National Sweet Pea Society, at the Wisley trials gardens are also published each year, to give guidance as to the merits of the new cultivars and also their suitability for cultivation for exhibition and, or garden decoration. The elite of these plants on trial can receive awards for exhibition and/or garden decoration.

However, what will grow well for one gardener is not guaranteed for all over the country and some degree of experimentation is required to find which type of Spencer Sweet Peas will grow best on your soil. Some cultivars are very strong growers, whilst others are more refined, but careful reading of the seed merchants' catalogues will also help in this respect. If there is any doubt about this or any other matter concerning the cultivation of Sweet Peas, don't hesitate to contact your N.S.P.S. District Representative, or a member of the General Committee; all these people are listed in the "Annual" and on the Society web site.

If the Sweet Pea crop is intended for exhibition, it is usual to plant about three times as many plants of each cultivar as will be required to provide the cut flowers for a vase of that colour. Therefore if the show schedule asks for three vases, each of distinct cultivars, with not more than 12 stems in each vase, the gardener has to set out about 36 plants of each cultivar. To cover the eventualities of the weather, pests, etc. it is also prudent to set out more colour cultivars than the schedule calls for. To ensure that there are three good vases of 12 flower spikes available on show day it may be advisable to grow 4, 5, or 6 different cultivars. Very often the show schedule will have single vase classes as well or classes for vases of mixed colours, where these "spares" can be effectively staged - and win prizes!

When selecting cultivars for exhibition purposes, care should be taken not to choose those which are too much alike. In a small collection there is no point in growing a white and a cream, or too many pinks. The most popular colour selection for a small collection would be a white or a cream, with lavender, pink on white, pink on cream, pale blue, one of the red types, perhaps one of the picotee or fancy cultivars and a strong colour from the maroon or mauve range to add contrast. In making such a selection, it should be noted that some cultivars are more prone to spotting with wet weather damage, whilst others, such as the orange and apricot shades of colours tend to show scorching and loss of colour from the blooms in bright sunny weather. The beginner is advised to stick to the tried and tested cultivars, whilst the expert will take on the challenge of these difficult types with a system of covers and shading over the rows of his or her plants. With the experience of a few seasons, the grower will be tempted to choose one or more of the novelty cultivars, new to the catalogues for that year, as part of their selection.

We are indeed fortunate that there are several seed merchants and also some private persons supplying good quality Sweet Pea seed in a vast range of colours at very reasonable prices. The names and addresses of these seed houses can be found at the back of the N.S.P. S. Classification List of Sweet Peas each year and a number code in the Classification List of Spencer Sweet Peas co-ordinates those cultivars available from each of the seed merchants listed. Advertisements for seed and plants are carried by the N.S.P. S. publications and can also be found in gardening magazines, journals and papers. With the development of computer communications, it could be expected that trading in Sweet Pea seed and plants will also increase via the Internet in coming years.

When buying seed, always look for quality before quantity because production of this commodity requires a dedicated workforce to bring seed that is properly ripened, fully viable and true to cultivar to the market place. The seed merchants are jealous of their reputations and try to avoid packets of seed that fail to germinate or which contain rogue seed of a different cultivar. Having received your seed order it is up to you to keep it in good condition until the optimum time for sowing arrives. Some seed may be marketed in hermetically sealed foil packets that ensure high viability and optimum germination. Others,

in paper packets must be kept cool and dry until you are ready to sow.

It is advisable to order early, soon after the seed catalogues have been issued in the autumn to avoid the disappointment of stocks of the popular cultivars being sold out before your order is processed. Also purchase more seed than you expect to eventually plant out. This allows you to select the boldest seed for sowing and also to have more seedlings than your required number of plants to be eventually set out. Losses of seedlings can occur through accidents, fungal disease, the attacks of birds and mice, so an overage, (excess number), to compensate for these unexpected happenings is a good insurance. If you end up with too many young plants in the spring for you own needs, they will always find a good home in a friend's or neighbour's garden!

If you are purchasing seed for garden decoration, you may consider that packets of seed of mixed colours will be quite adequate. Very true! But here please ignore the advice given above as to the selection of the boldest seeds in the packet, otherwise you may end up with plants all of one colour. In this case, sow a true mixture of the seed, those of all shape, size, colour and seed coat texture to ensure the resulting plants provide a full range of colours. Cultivars for garden decoration and cutting for the home need to blend well together, although choice will be a matter of individual preference. Look out for cultivars that are renowned for their high fragrance factor especially if they are to be planted close to the house or patio. Mind you, scented cultivars are also very popular with the visitors to shows as well as with the exhibitors!

Gardeners growing Sweet Peas for the first time are advised to ensure that they select the right type of seeds for the project in mind. Spencers or Old Fashioned cultivars should be selected for tall growing plants, "patio mixed" for tubs and edging work. Or "Knee Hi" and "Royals" types could be chosen for plants of an intermediate height in a border. Early flowering types can be grown in a greenhouse or heated conservatory to extend the growing season during which blooms may be cut and enjoyed.

Seed sowing

Sweet Pea seed can be sown from late September through to March of the next year to get plants which will bloom during the summer months, but obviously the management of the seedlings will differ markedly, depending on whether the autumn sowing or spring sowing method is selected.

Autumn sowing will be chosen by the grower who needs blooms for exhibition in the early part of the show season. The seed is germinated in late September, through October and even into early November to provide young plants that are over-wintered with some degree of protection from the weather, usually in cold frames, but unheated greenhouses or polytunnels may also be put to use. These plants are then set out into their flowering positions in March or April. The timing of sowing will depend on the geographic location of the garden, the known incidence of early frosts in the district and experience from

previous years. For the beginner in the southern half of the U.K., the favoured dates for autumn sowing is during the second week of October, but a few days either way is not going to make much difference to the final results. The objective is to germinate the seeds gently and grow the plants "hard", that is, without undue heat, but with all the light and air that can be given, except when excessive rain, snow or sharp frost is forecast. In these circumstances the glass or plastic covers would be replaced on the cold frames and other structures closed up against the elements. In times of severe and prolonged adverse weather extra coverings may be put over the frames to limit the penetration of hard frost.

Spring sowing is the method used by growers of Sweet Peas for garden decoration or for exhibitors who live in the more northerly counties of the United Kingdom, where winter weather and low light intensity make it difficult to over-winter plants outside successfully. For this method the seed is germinated in gentle heat in the early part of the spring, with the objective of hardening off the seedlings as quickly as possible. It is essential to prevent them from becoming drawn, elongated or "leggy", but they do need to develop a strong and branching root system, out of sight, under the soil surface.

Being a true annual, the Sweet Pea can also be sown direct into the garden soil where it is intended to flower. Two or three seeds can be sown at each site where a plant is desired and any surplus plantlets thinned out early in the growing season. These thinnings could also be transplanted, with care, to other sites where there may be a gap in the germination success. The groups of seeds can be set about 4 inches apart in March and thinned out to an 8 inch distance when the plantlets are established. Or, in sheltered gardens the seed can be put out in September for flowering in the following year, but protection from severe frost and deep snow may be required with the use of cloches or horticultural fleece cover. Open garden sowing of Sweet Peas is liable to losses from predators eating the seed or seedlings, so the seed stations need protection from mice, birds, slugs and snails.

Seed sowing composts can be purchased in convenient sizes of bags or be home produced. There is now a wide range of proprietary composts available, which may be either based on loam, the John Innes types of soil composts or others that are based on peat and other fibre materials. The choice is with the individual gardener, but the advice is that it should be free draining yet moisture retentive and capable of supplying the nutritional needs of the autumn sown plants for 6 or 7 months. Loam based composts are heavy to handle in bulk and may vary in characteristics depending on source of supply. In contrast the peat-based composts can start to break down over a period of months, so they may compact in the seed pots or trays and also allow moss growth on the surface unless this is gently broken up from time to time.

Home produced composts have the initial problem of the necessity to sterilise the ingredient soil or loam before the other components to formulate a John Innes seed compost are added. If you have had success with germinating other

seeds with your mixture, then there is no reason why it should not work for Sweet Peas as well.

Some authors will advise that composts are moistened a day or two before use, but alternatively it is possible to water the seed pots or seed trays after the sowing work has been completed; this is certainly a cleaner way of doing the job. In either respect the resulting compost in the containers needs to be evenly moist, not soggy, nor patchy wet. Clean water must be used for this operation, not material that is contaminated with algae from standing in a water butt for several months, nor from a dirty watering can that may have even been used for weed killer!

Prior to sowing, the Sweet Pea seed should be examined and any mouldy, broken or split seed rejected. Some cultivars have dark, very flinty looking seed, which may appear wizened and crinkled. The germination rate of this type can be enhanced by chipping a small area of the seed coat on the side away from the hilus (the white scar where it was attached in the seed pod). As an alternative to chipping with a sharp knife or safety razor blade, the seed can be scarified with the edge of a fine file.

Some growers choose to place the seed on damp filter papers, moist cloths or dampened vermiculite in a saucer, which is left overnight at room temperature or in gentle warmth, (do not cook in a hot airing cupboard!). The seed which swells is then sown in the routine way and any that does not swell has its seed coat chipped, or is discarded. Do not immerse the seeds by soaking in water; the subsequent seedlings are more liable to rotting.

Seed can be sown in pots or deep seed trays and covered with about $\frac{1}{2}$ to $\frac{3}{4}$ inch of sifted compost. If the seedlings are to be potted on into individual 3 inch round or square pots after two to four weeks growth, then the seed can be sown fairly close together. A standard seed tray (12 x 6 inches) will hold 45 seeds easily on a 9 by 5 grid pattern, or 35 seeds in a 7 x 5 grid pattern as illustrated in Plate 2. Similarly a 5 inch pot will hold about 12 seeds, 8 around the edge and four more in the centre. On the other hand if the seedlings are to remain in their original containers until planting out time, then the spacing between plants needs to be increased to 2 inches apart in boxes or limited to 5 plants to a 5 inch pot as shown in Plate 4.

As an alternative method, seed trays can be lined with plastic inserts that have rows of individual cells, or plugs, that are filled with compost in the normal way.

Individual growing tubes can be made from rolled up stiff paper, but these tend to disintegrate over the winter months and may be more suitable as a low cost method for spring sown batches of seed.

Small netted packets of dry compost, known as “Jiffy 7s”, which are watered to make them swell before use, may be an advantage where the convenience of a pre-packaged seed sowing equipment is required.

A further alternative system is the sowing of seed into “Rootrainers”, which provides reusable individual cells packed into trays. These cells are open-ended at their base and thus limits the tap root extending out of the growing medium.

After sowing, the compost is levelled and gently pressed even. Ensure that each pot and seed tray is labelled using an indelible marker, then the boxes or trays are watered using a fine rose on the watering can and placed in a suitable place for germination. For October sowing the best place for germination is in a cold frame. On fine days the frame glass or plastic covers, (the "lights") are removed. But precautions taken to prevent the emerging seedlings being damaged by slugs and snails, mice, (they are very fond of the taste of pea seeds!), birds pecking out the tender tips, or cats looking for somewhere cosy to spend a few hours in the autumn mid-day sun. Netting draped over the frame will take care of the latter two problems. Other growers will place the newly sown seed in their containers into a thermostatically controlled propagator frame with the temperature set at 15° to 18°C, (60° to 63°F). As soon as there is any sign of the seedlings emerging the containers are then placed into the cold frame for growing on. Never let the seedlings get overheated or drawn through lack of light. Gentle watering is given as required in dry spells of weather, but usually there will be enough moisture from rain showers to keep the containers moist. If prolonged or heavy rain is forecast, then it is advisable to keep the frames covered to prevent the compost becoming waterlogged with leaching of nutrients out of the compost. But maintain a good air-flow through the frames except in frosty weather. Germination can start in five to eight days depending on temperature.

If the seedlings are to be potted on after germination, it is usual to do this into 3 inch round plastic or clay pots or 3 inch square pots that pack neatly and snugly together in the cold frames as shown in Plate 3. The elite clay pots are 3 inch "Long Toms" which are taller than the conventional pots, and allow for extra root development during the winter growing months. Other growers would use tubular plastic containers that fill out to about 3 inches and also pack well together in the frames if they are stood in trays or boxes first. Fibre pots, which are biodegradable, can also be used with success and have the advantage that there are no plastic or clay pots to wash and sterilise after the plantlets have been set out in their growing positions.

Potting on is done at about the time when the first leaves start unfurling and when the plantlets are large enough to handle without damage to roots or stem. The plants will be about 1 to 2 inches tall and the taproot will just be starting to send out branching roots. Simply lower the taproot into a dibber hole in the compost, tap the pot to settle the compost, which should now be level with the original depth on the stem and gently water to finish the job.

Spring sown seed will be established in the same way as the October sown cultivars, but they will require some gentle heat to get a uniform germination. Their containers can be set out on a green house bench or in a conservatory if the temperature can be kept uniform to at least 8° to 10°C, (43° to 45°F), or in a propagator frame with the temperature set to a degree or two higher, perhaps using a soil warming cable for the larger propagating frame or a bench heating blanket or bench propagator for smaller batches of seed. The seedlings are

Plate 1: National Sweet Pea Society stand publicising the Society and Lathyrus at RHS Wisley.

Plate 2: Newly emerged seedlings growing in a garden frame in October showing a good germination percentage.

grown on in maximum daylight available, well ventilated and gradually hardened off, being set out into cold frames when the weather allows. Spring sown plants may take two to four weeks longer to be ready for setting out in the open garden than those from an autumn sowing. However, this may not be a disadvantage to gardeners in the more northerly counties, where the soil may be slower in warming up after a long winter.

Producing quality plantlets

Whilst it is advised to grow the plantlets of October sown seed in cold frames over the winter months whenever possible, some gardeners will achieve good results using an unheated greenhouse, when they make sure that full ventilation is available on sunny days to limit the temperature build up.

Equally, measures have to be taken against the damaging effects of severe or prolonged cold weather during the depths of winter and early spring. There is little point in rearing good quality plantlets only to lose them or have them badly crippled due to the effects of severe frosting. When frost or snow is predicted, then the covers should be replaced on the frames. If lower temperatures are expected, the layer of insulation over and around the frames can be increased by the use of extra glass frame lights, or sheets of bubble polythene weighted down with tarpaulins, or netting tacked to wooden laths. Layers of sacking, or even layers of hay or straw kept in place with netting may be used as emergency, short term protection, but remember that the sacking, hay or straw will lose a lot of its insulating value when it gets wet. The plants will safely tolerate a few degrees of sub-zero temperatures if they freeze slowly and if they thaw out even more slowly. At the end of a prolonged cold period or even after one night's very cold temperature, the covers and extra protection should be left in place until the compost in the pots or trays has completely thawed. The plants virtually go into hibernation in the cold and dark conditions of a properly "bagged- up" frame and can survive like this for days or weeks on end. Plants will not tolerate severe cold if they are bone dry when the frost sets in. Under these circumstances the plants dehydrate and shrivel when they thaw out. Hence the need for a uniform level of moisture, but don't drown them!

One important cause of losses of young plants in the frame or soon after planting out is known as "brown collar" and this condition is clearly shown in Plate 5. A ring of corky tissue encircles the stem just at the level of the compost or ground surface and eventually fungal and bacterial rots destroy the plant. Much of this damage may relate to the plants being blown about whilst the compost is frozen, so that ice crystals on the soil surface cut into the plant tissues. Make sure that the compost is fully thawed out before the covers are opened to windy weather.

Well grown plants will start to make lateral shoots as breaks from small nodes on the primary stem. These arise below the first leaf in the early part of the New Year following October sowing. As cordon growing system depends on training

one of these "breaks" as the main stem, or haulm, for the mature plant, it is essential that each plant has one, preferably two or three side shoot breaks when it is set out at the growing position. To ensure this, the growing tip of the primary stem can be pinched out, or snipped out using sharp, fine pointed scissors, when the primary seed shoot has produced four of five true leaves. For spring-sown plants, growers would pinch out after two or three leaves have developed. Plants grown for garden decoration also may benefit from pinching out, or "stopping", when four or five leaves have developed to ensure that several strong branching stems develop on the mature plant and give the bushy effect required in this method of culture. Plants that are left unstopped will only produce a spindly, thin primary seed stem, which invariably goes "blind" early in the season, with the delayed emergence of side shoots.

Plants should not need to be fed extra fertiliser during the stage of growth in the garden frames if quality seed compost has been used to start with. Sweet Peas, being one of the legumes, are capable of fixing nitrogen from the atmosphere through symbiotic bacteria in little white nodules on the roots. The only exception to this advice would be if the plants have been exposed to a lot of rain during the over-wintering time which has leached much of the nutrients and trace elements from the compost and the plants are showing stress in the form of yellowing or browning and withering of the lower leaves. Attention to frame management, improvement of drainage and consideration of a balanced soluble plant fertiliser at the rate of a quarter to half normal dilution value in a small amount of water from a can with a fine rose may resolve the problem.

Being able to fix nitrogen means that the plants will thrive if the compost is not compressed too firmly; this would exclude the vital air spaces. Gentle stirring of the surface of the compost in the containers now and then during the growing phase of the plantlets will also increase the penetration of air and prevent the clogging effect of algae and mosses.

A regular inspection of the plants in the frames during the winter months is strongly advised. Not only to assess the need for watering, but to look for signs of damage from pests, slugs especially. In recent years the winters have become milder in most areas of the U.K. and this means there is a greater risk of aphid and caterpillar attack to the young plants. The caterpillars of the winter flying moths have a healthy appetite and can soon do a lot of damage to leaves and, more importantly, the growing tip of the side shoots needed to establish the eventual mature plant. On the other hand aphids transmit viral diseases from plant to plant and the symptoms will soon show up as stunted and twisted growth even before the grower has chance to plant out.

Purchasing plants

If it is not possible to raise your own plants from seed, then it is still possible to obtain good quality plants from specialist nurseries. These firms advertise in the N.S.P.S. publications and the gardening press. It is advisable to order in the

Plate 3: Seedlings potted on into 3 inch pots, showing embryo side shoots and ready for the primary shoot to be pinched out.

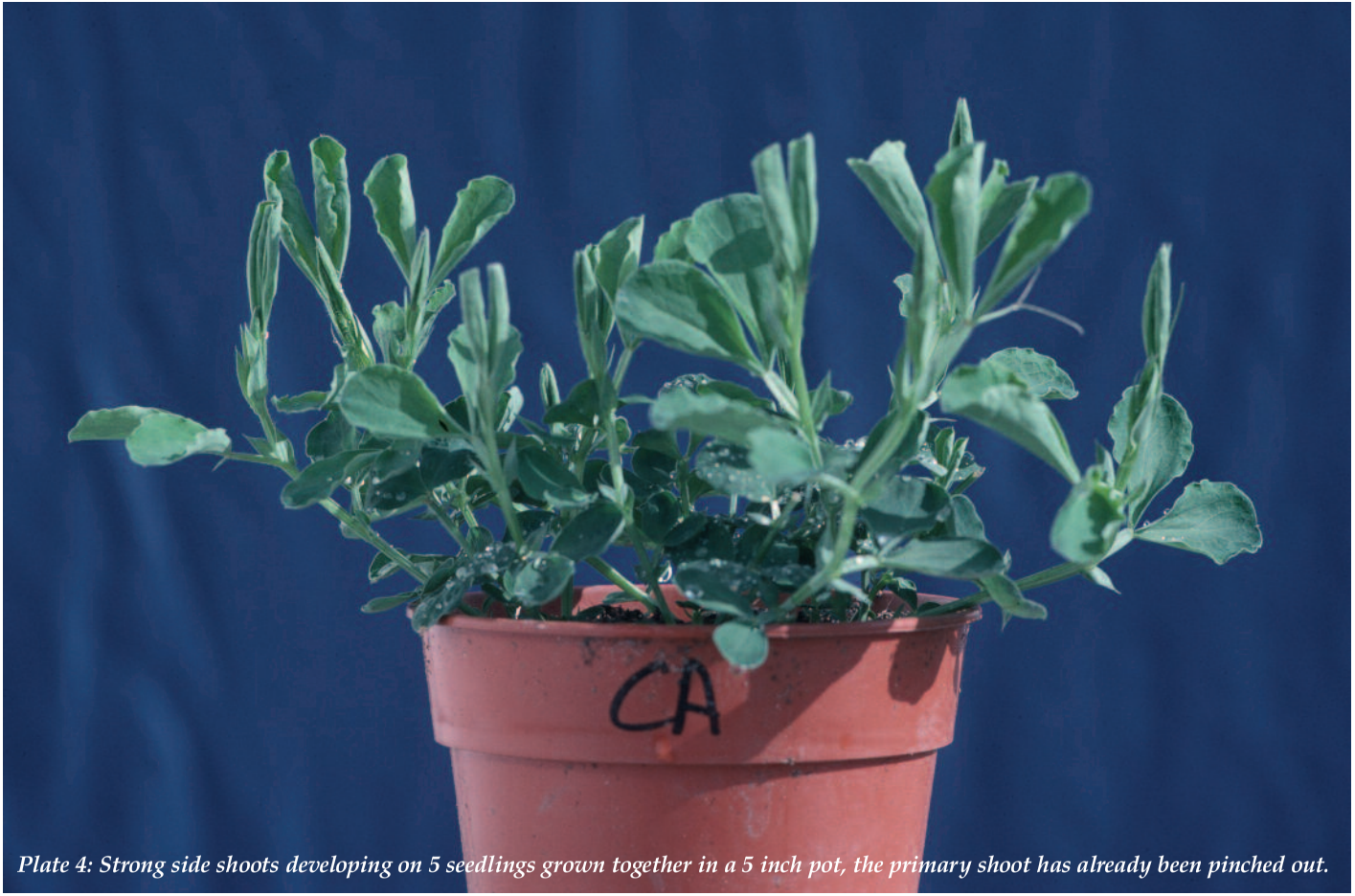

Plate 4: Strong side shoots developing on 5 seedlings grown together in a 5 inch pot, the primary shoot has already been pinched out.

autumn for delivery of plants in the spring to ensure the delivery of the cultivars required from their lists. These plants are likely to be far superior to the small pots of spindly Sweet Peas that are sometimes seen in other retail outlets. On receipt of your plants ensure they are fully hardened off, have been pinched out to set up healthy side shoots and are free from pests and diseases, before setting out in the garden.

Preparing the Sweet Pea growing area

It is difficult to give hard and fast rules on the preparation of individual gardens for the cultivation of Sweet Peas because the plots will vary so much from area to area. It will depend on factors such as area available, soil structure slope of the land, pH, and average rainfall for the district, the degree of shading from sun and wind and the gardener's physical capability to perform heavy digging tasks.

An ideal situation to start growing Sweet Peas would be on a plot in a garden that has been previously cultivated for vegetables, so that it is in a good state of fertility, has been well dug over and is free from perennial weeds. The ideal is not always available and a gardener tackling a new plot would be advised to clear it of rubbish and rubble and clear the grass and weed growth with a non persistent chemical weed killer or flame-thrower instrument. The deep-rooted docks, thistles and brambles etc. can be forked out before the general job of digging the area starts. Normally, digging to one spade's depth should be sufficient but if the ground has become compacted, or is in a poor state of fertility you may consider double digging.

The method of double digging involves the removal of a trench, about 3 feet wide, across the plot, putting this top soil to one side. The spit of subsoil that lay beneath is then broken up by digging through with a fork. At the same time well made compost can be incorporated into the turned over subsoil. Rotted stable or farmyard manure may be of use provided any straw has not been treated with selective weed killer or other chemicals that might affect the growth of the Sweet Pea plants. Other fibrous materials mixed into this lower second spit of soil will assist with the fertility and drainage in the years to come. The top spit is then replaced with the next three feet width of soil to expose another stretch of the underlying subsoil, which is forked through in the same way as before. So the work progresses down the area of land to be double dug until the final trench is filled with the soil removed from the very first trench. Avoid the added manure etc. sitting in a sandwich between the top and bottom spits.

Of historical interest, an early book on the cultivation of Sweet Peas, dated 1910, advises that trenching the growing plot to more than three spade depths is not really worth while! Only if you have muscle power to spare!

If the rough digging of the area can be completed by mid December, then the winter frosts will help to create a good crumbly texture from even heavy soils.

This is now the time when the keen gardener will have soil samples analysed for pH and nutrient values, either using a purchased kit, or electronic instruments that have been marketed for this purpose, or sending the sample to a horticultural laboratory for detailed examination and report. Make sure that the sample for analysis is a composite one from several places across the site, is dry and well mixed before testing. If you plan to send samples away to a professional laboratory, specify that you intend to grow Sweet Peas and, in reply, they will give the relevant advice for your plants' needs if there are any deficiencies. If concentrated fertiliser is required, avoid excessive amounts of high nitrogen compounds, otherwise coarse, rank growth of the Sweet Peas will be the result. On the other hand, pay attention to the levels of potash and phosphates; these are essential to balanced growth and good bloom production. Given the access to these two essential elements the plants and their flowers will grow in a strong, robust and balanced manner.

Depending on the analytical report, extra lime, trace elements, or major nutrients may need to be added to the topsoil during perhaps a dry spell in February. This can be forked or raked in, or incorporated with a cultivator when the soil surface is evened off after the winter weather has done its work. Seaweed extract formulations often make good fertilisers for Sweet Peas as they contain a great number of minor trace elements which are difficult or expensive to test for. In subsequent years, be careful not to overdose with fertilisers and create an excess level of one or more components, to the detriment of other nutrients essential for good plant health. The Sweet Pea plot should be left for a week or two prior to planting out, as they thrive best in a fine tilth of a friable, open draining, but not too loose type of soil structure.

Some growers adopt the method of double digging in the form of trenches, about four feet wide, just where the lines of cordon Sweet Peas are to be set out. Care has to be taken to ensure good drainage otherwise these trenches can act as sumps and fill with water in rainy seasons, resulting in the rotting of the roots and failure of the plants. For the next year the lines of the trenches are moved sideways to the positions where the pathways were previously.

Final words on fertilisers and soil dressings; always use according to the instructions printed on the packaging and do not try to rectify severe deficiencies of a particular element in just one season. Spread the applications over two or three years or compensate by using liquid feeds, with the necessary formulation during the growing season. If using more than one formulation of fertiliser in a season, make sure that they are compatible and complementary and that one chemical or pH factor will not lock up another essential element.

Sweet Peas can be grown on the same plot of land in subsequent years very successfully, but it is good gardening practice to alternate the Sweet Peas with other crops whenever possible to avoid the build up of root rot fungi and imbalance of soil nutrients.

In late winter, the area where rows of Sweet Peas are to be set out can be covered with strips of plastic to try and reduce the penetration of spring rain

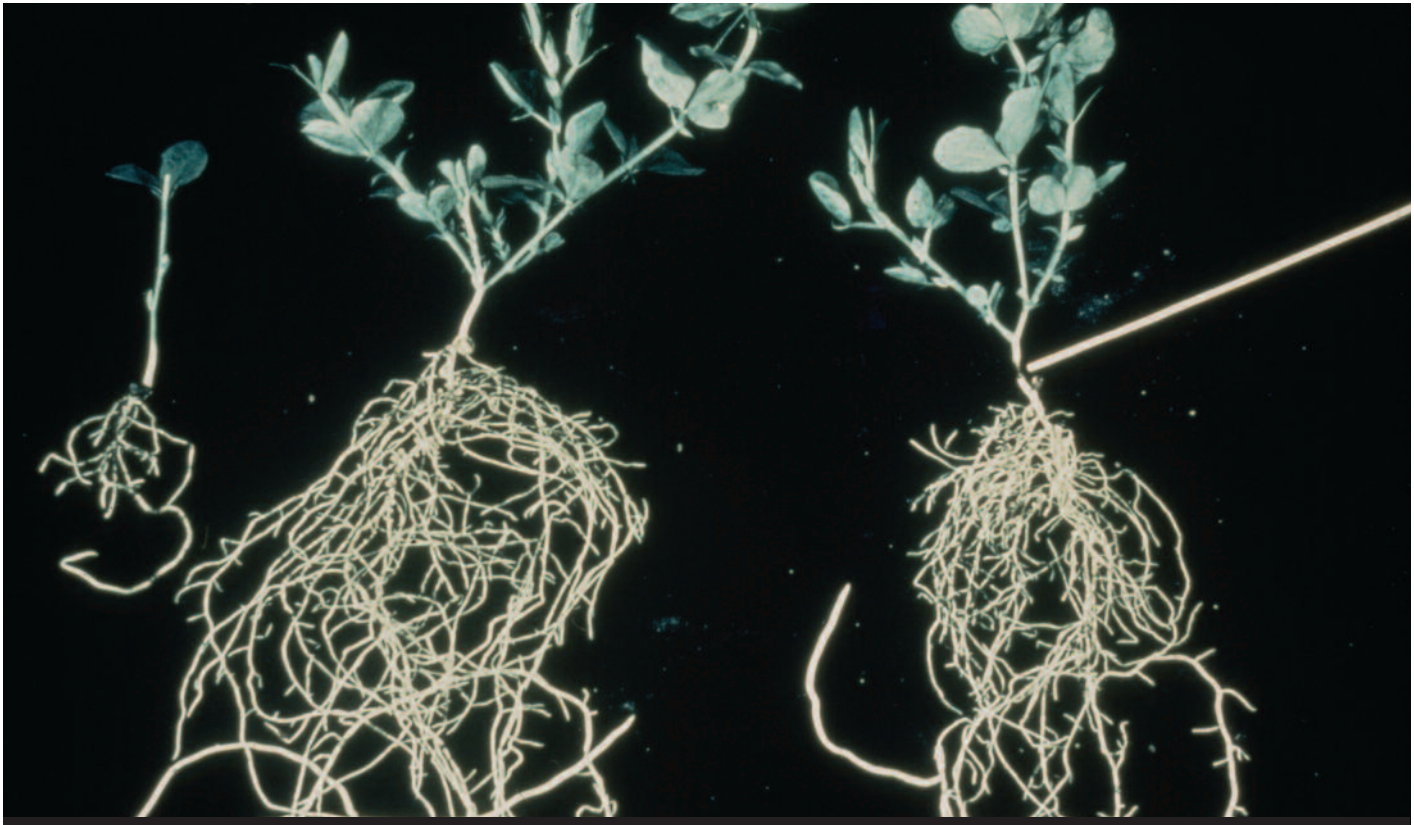

Plate 5: Plantlets at time of planting out to show variations in root structure. Central plant is in excellent condition. The one on the left is a poor, underdeveloped specimen; whilst the right hand plant shows brown collar, (at the tip of the pointer). As neither of these seedlings will develop into mature plant, they should be discarded.

Plate 6: The Sweet Pea plot, after cordon plants have been set out. Some plants have two strong side shoots, one of which will be removed once the plants are established.

storms. Or horticultural fleece and cloches can be used in an effort to try and warm up the soil and get it into a fit state for planting. Indeed, Sweet Peas for garden decoration can be sown directly into the soil under the protection of barn cloches very successfully provided attention to ventilation is given on warm, sunny days.

Where the flowers are grown for garden decoration, or cutting for use in the home on the bush grown method, then usually there is not so much pressure on garden space and a new site can be found each year. Good cultivation of the area to be used is still advised and the site prepared on a mini scale in comparison to that for cordon plants described above.

Where the plants are grown in tubs and pots on a patio, then new soil or potting compost would be filled in to the containers each year ensuring that good drainage is provided to avoid water logging. As the summer progresses supplementary foliar feeding or granular fertilisers would be used to compensate for the restricted root space of the patio containers.

Setting up the supports for Cordon grown Sweet Peas

As the seasons change into early spring and the gardener is satisfied that the area designated for the Sweet Pea crop has been successfully cultivated, preparations for planting out can be started. The site is marked out, with short canes or sticks to indicate where the rows will run and the end posts and interval posts inserted. These can be 4 x 4 inch posts, as used for supporting fencing panels, or 3 to 4 inch diameter round timbers, or lengths of heavy duty angle iron, or iron piping. Whatever is used, they need to be inserted to a good depth in order to resist movement later in the season when the full weight of the mature plants is being pushed by summer's winds. Good preparation now will avoid the problem of the crop collapsing on the floor in a gale later on. Repairs to this damage will be impossible!

The support posts carry wooden or metal crosspieces between 9 and 15 inches wide at about five to six feet above ground level, as illustrated in Plate 10. Wires are then strung the length of the row on the ends of these cross pieces and, in turn, the wires support the upper end of bamboo canes. The straining wires can either be secured to each of the cross pieces or run free through staples or holes drilled in the ends of the crosspieces and then secured at the end posts. The latter method allows the wires to be tightened during the summer if the end posts start to lean in under the weight of plants along the line.

It was mentioned in an earlier paragraph, under "Site Layout" that it might be beneficial to have a second straining wire running between the support posts at a height of about half way up the bamboo canes. This may help on exposed sites and is a feature of the demonstration plots of the Sweet Pea trials at the R.H.S. garden at Wisley.

The bamboo canes are usually purchased as 8 feet long, medium or heavyweight grade. The advantage of buying long canes in the first place is

because that over the years the bases rot and the canes shorten. If you start with only six-foot canes, after a few seasons they are too short to be of any practical use.

The majority of Sweet Pea growers would still favour setting out their plants in double rows, with the rows 12 to 18 inches apart. Recently some growers have tried a new method by planting out in a single row and alternate canes lean out from the vertical towards the two support wires above. The advantages of the latter method are that more plants can be grown in a given area because the pathways between rows can be narrower, a single water irrigation line can be used, and it is easier to weed and hoe around the single row. The disadvantage is that the whole structure is not quite so robust when compared with rows where the canes lean in to vertical or are placed in the vertical plane with the double row method. Also, perhaps the plants do not get the greater root run of the more spaced out double row system, where the plants are set out 8 to 10 inches apart down the length of the row. In the single row system the plants are closer spaced at 4 to 5 inch distances.

Plants can be set out in a single row with the canes placed vertically, but this leads to problems when the haulms have reached the tops of the canes in mid summer and they need to be layered to continue their trained growth. The answer to this dilemma will be given later under the heading of "Layering".

The bamboo canes are pushed into the ground to a depth of two to four inches and either tied to the support wires using string, twine, raffia, or thin pliable wire, or held in place by neat sprung wire clips known as "Vee Clips" and "Jiff Clips". Some growers prefer actually to set out their plants first and then put in the support canes afterwards, on the basis that they have more room to work without the canes in the way at planting time. It's just a matter of individual preference.

Supporting Naturally grown plants

Once again the structure to support plants that are destined to provide general garden decoration or cut flowers for the house has to be robust and well constructed to bear the great weight of the plants that grow with a branching system in this method. There is a lot of top weight to a clump of naturally but well grown plants when they are in full bloom in mid summer. Wigwams of canes or hazel branches are best tied to a central supporting post. Netting of wire, plastic or nylon mesh can be strung from strong posts spaced at intervals of three to four yard distances. If the netting is flexible, a taut wire along the top and bottom down the row will help maintain the rigid nature of the construction. Similarly, pergolas, trellises and other supporting structures need to be well built without the risk of collapsing under the extra weight of the fully-grown crop.

Setting out the plants

With the supporting structures all in place, progress now continues with the transfer of the plants from their over-wintering frames and into their growing

Plate 7: The head of a strong, healthy cordon plant supported with galvanised rings. The tendril on the left hand leaf is ready for removal and the side shoot from the axil of the bottom leaf will be removed in a day or two.

Plate 8: Plants at the start of the flowering season being layered from right to left.

positions in the cultivated plot. Ensure that the plants have been watered whilst in the frames, a day or two before planting out, so that the root-ball is evenly moist, but not soaking wet. Autumn sown plants would normally be planted out in mid March by most growers, with this date maybe a week or two earlier in the more southerly and milder areas, or a week or two later for northern counties and more exposed gardens in hilly areas. This can only be a rough guide and will depend on the season and the forwardness of the plants. An early spring may dictate an early start to the job. Conversely, slow growing plants after a hard winter, a slow start to spring, or persistent wet weather may delay the setting out operations.

Plants that have been grown as hardy specimens can tolerate some degree of adverse weather at planting out time, but obviously avoid very frosty or snowy conditions or after heavy rain, when the structure of the soil will be damaged by the gardener's activities on the plot. It is better to wait for the weather and plants to be in the best of conditions before setting them out, as time will not usually be lost in the long term. Spring sown plants will normally be ready to set out about a month after the autumn sown ones. Discard any plants that seem weak, thin stemmed, or if they have brown collar at soil level, as these will only cause disappointment later on, when their replacement is not possible. For comparison of good and poor plants please refer to Plate 5.

Also reject any young plants that show an absence of a side shoot, either because they have been chewed off by slugs, caterpillars or birds, or have failed to develop after the growing tip of the seeding shoot was pinched out. Rarely plants may show fasciation (gross flattening of the stem due to genetic damage of the meristem cells); destroy these as well. They will not make satisfactory mature plants.

The ideal plant is a healthy deep green colour, perhaps with even a steely-blue tinge if they have been grown under hardy conditions. They should be sturdy, short jointed between the leaves and have two or three side-shoots which are also short jointed, plump and each have an active growing point. Plate 6 shows a Sweet Pea plot that has recently been planted with young plants of acceptable quality.

Plants grown in individual containers, either pots or plastic sleeves, can be planted out without disturbance by knocking out of the pot, removing any crocking material, if this has been used, and then dropped into a hole taken out at the planting site. The planting holes can be made with a trowel or cored out using a bulb planter tool. Some growers like to tease out a few of the white roots, especially if they are wound into a tight web at the base of the pot, but the main ball of roots and compost remains undisturbed. Make sure that any pots, which have waterlogged compost, don't also have a root ball that is starting to rot. Browning of the root fibres where they have been in contact with the pot may be due to hard frosts late in the winter, but if many of the roots appear dead, then it is better to select an alternative plant. Some organic fibre pots are designed to be planted intact, "pot and all" method, the roots grow through the

walls of these pots after planting and hopefully not whilst the plants are sitting in the frame during the over-wintering period! It is advisable to break off any excessive rim to these biodegradable pots before planting to make sure that it does not act like a saucer to collect rain around the stem of the plant. The compost of the pot needs to be level with the surface of the soil without the fibre rim sticking up, to allow good drainage.

Where several plants have been growing together in a wider diameter pot, these are gently knocked out and the roots disentangled with minimum damage. The individual plants can then be set out at their stations using a trowel or planted out into a "V" shaped trench, about four inches deep, that has been made with a spade or perhaps a lawn edging iron. This is the typical situation when it would be easier to place the canes after the plants have been set out. Ensure that the roots do not dry out whilst sorting and planting out these plants that have been "shaken out" from larger pots.

The soil is brought back to a level below the first side shoot and the plant firmly, but lightly, pressed in to establish good contact between root-ball and soil. If the season is exceptionally dry, then the rows of plants can be given a light watering, to help establish root and soil contact.

If planting out is difficult due to sticky, wet soil, then a little dry soil or compost from a bag can be trickled in around the roots and the plant settled in its new location more easily.

On very fertile soils, some of the more vigorous cultivars will produce coarse growth and perhaps large but poor quality blooms, useless for exhibition. To counteract this excessive growth it is possible to cultivate more refined blooms by growing two cordon stems from each plant; "double cordons". For this the plantlet would be set out midway between two canes and a shoot trained up each cane. This presumes that the plantlet has more than one side shoot break to start with at the time of planting out.

Protection of the newly planted seedlings from chilling North and East winds can be ensured with wind breaks made from "Rokalene" netting or strips of plastic or hessian clipped to canes set a short distance away from the rows in the Sweet Pea plot.

Precautions are also needed against slugs and snails with the use of bait or traps. If the gardener prefers not to use slug bait, there is always the old fashioned method of dealing with snails and slugs, that of "patience and a candle"; i.e. to patrol at night with a torch and collect up the molluscs for disposal away from the Sweet Pea site.

Likewise, birds, especially sparrows and tits, can be a menace to newly planted rows of Sweet Peas. Bird scarers of rattling metal foil, or unwanted old CDs hanging from short lengths of string, which rotate and flash in the breeze are often effective deterrents, but need to be moved at intervals so that the birds do not become accustomed to them. Otherwise strands of cotton stretched taut alongside and above the plants will make an effective deterrent except for gardens where these predators are most persistent. In such situations, netting

Plate 9: First flush of flowers on cordon plants. Haulms supported with green plastic "Max Tapener" tape.

Plate 10: An exhibition bloom almost ready for cutting. Plants are here grown on canes canted out at the top; compare with the inward slanted canes of the previous picture.

protection may need to be employed.

All the above precautions should be taken on the day that the plants are set out as molluscs and birds will soon discover that the local menu has improved dramatically!

If the side shoots have grown to any length by planting out time, then they may need the support of a galvanised Sweet Pea ring, a loop of raffia, or garden twine tie to hold them to the nearest cane and this will prevent damage from the wind pushing them back and forth. In some years the side shoots may need two or three rings to hold them in place, but be careful not to snap the side shoot trying too hard to tie it in against the support cane.

In the same way, plants for garden decoration can be planted out and protected like those in the cordon system described above. The plantlets would be set out close to the supporting material of netting, wigwam of canes, or trellis, or into the patio pots, each about six to eight inches from its neighbour to give adequate growth room during the season. The dwarf bedding types could be set out a little closer at four to six inches apart, in blocks, for visual colour impact.

The growing season

Once the operations of planting out are completed there is little for the gardener to do for the next four to six weeks whilst the plants establish their branching root systems and start to extend the growth on the side shoots. Maintain vigilance for pests and if there has been any damage at planting out time resulting in weak or dead plants, then these can be replaced from a stock of "spares", provided the latter have not become too leggy or starved by remaining in their original pots for too long.

An unusually long dry spell after planting out may mean that the plants will require supplementary water, especially on free draining sandy soils, and this will help to get the root system established. But usually it is better to let the plants seek out deeper moisture by extension of the tap root system, rather than develop vulnerable surface fibrous roots just under the soil level.

On cordon grown plants, once the side shoots have extended to about 8 or 9 inches it is time to decide which of the shoots on a given plant is to be retained as the main stem, or haulm. Look for the strongest, not necessarily the longest side shoot, then remove the growing points of the others, leaving the chosen shoot intact to be trained up the cane. Growers often worry that a late frost or other damage can take this single shoot, but fortunately the plant will usually compensate for this by sending out secondary side shoots if this happens. This will delay the blooming of the plant by a week or so, but it will still be productive.

As growth of the leader progresses it is trained to its cane using the traditional Sweet Pea rings, which are at least $1\frac{1}{2}$ inch diameter and made from springy galvanised or plastic coated wire. The National Sweet Pea Society has stocks of

quality galvanised rings to sell to its members from time to time; look out for advertisements in the Annual for details. Avoid rings of a lesser diameter, as they do not allow room for growth of the stem in thickness. Alternatively, the haulms can be tied in with raffia, or soft twine, or short lengths of plastic cover wire twisted around cane and stem. A fast method of tying up large numbers of plants is to invest in one of the hand held machines that staple a band of flexible plastic tape around the haulm and cane in a neat and secure fashion. The equipment marketed by Max Tapener works very well and speeds up the operation of tying in large numbers of cordon plants on the Sweet Pea plot once the operator has had a little practice. Whatever method of tying up is selected, the grower should allow room for the haulm to expand as the height of the plant increases, thus avoiding the stem becoming strangled in a ligature. Plants are best tied up at every leaf joint to keep the stem straight and limit flexion of the plant in the wind. However, in the early weeks, tying in at every other leaf joint may be all that will be required, as the length of interval stem is quite small at this stage in growth.

As the growth of the main stem extends upwards during late spring and into early summer, further side shoots will develop in the leaf axils and the leaves extend to form clinging tendrils, as seen in Plate 7. Both the side shoots and tendrils can be pinched out or gently snapped off with finger and thumb when they are large enough to handle. If scissors, snips, or sharp knives are used for this operation, be aware of the risk of transmitting virus disease from one plant to another. Clean such instruments with a weak solution of potassium permanganate or surgical spirit to help avoid such cross contamination of infected sap from one plant to the next in the row. How do you prevent such an infection being spread on fingers and thumbs? Good question!!! The obvious answer is to recognise the symptoms and appearance of infected plants, not to handle these until all work has been completed on the Sweet Pea plot for the day and then pull up the affected plants and consign to a bonfire or a dustbin.

But do not be too hasty in removing all the side shoots in case one is needed to replace a damaged leader shoot. It is best to always have the top-most side shoot left intact in reserve.

If some of the cultivars being grown are of a less vigorous growth nature, or if the soil is of low fertility, it can be beneficial to pinch out just the growing tips of the side shoots as they develop so that one or two leaves actually develop on each of these side shoots. This increases the total area for photosynthesis and thus energy production at the head of the plant. These extra leaves can be a help to some of the less robust orange and lavender cultivars, but the gardener may then have to consequently remove secondary side shoots growing in the axils of these leaves. It is all a matter of balance for the plant and the novice grower learns this with experiment and experience.

The tendrils are best taken off when not too large. If they are left too long they may tangle around the stems of developing blooms, distorting the straight flower stem into a useless bent one, or prevent the flower buds opening normally.

Plate 11: Blooms ready to be set up as a 9 stem exhibit in a 2 inch Sweet Pea vase, packed with supporting reeds pushed down from the lip of the vase and the back decorative leaf already in place.

Plate 12: A prize winning vase of 12 stems "Honeymoon"

New cultivars are being bred which are free of tendrils. These types have multiple leaflets instead of the twining tendrils fibres. The extra leaflets of these "acacia leafed" cultivars obviously have a greater chlorophyll green area to the plant and their cultivation would take this into account.

Lengthening and warmer days of early summer result in the appearance of the first flower buds. Some gardeners will be impatient to see this first colour and let them develop, others will pinch out the first few flower stems to allow the strength of the plant to build up before true flowering begins. The choice is yours, but the effect is the same in that no flower stem is left on the cordon grown plants to set seed. All blooms are either cut off for exhibition purposes or discarded, or taken into the house for personal enjoyment!

The plants, which are growing blooms for garden decoration or cut flower arrangements, require less intensive or detailed care. All they need is a regular tying in as the side branches develop and perhaps a little thinning out if the plant growth becomes too dense. Most of the tendrils would be left to develop naturally and help the plant to cling to its supporting structure. But the flowering time will be prolonged if the old blooms are removed on a regular basis. The botanical objective of an annual plant is to set seed. Once it has developed a good crop of seed pods the plant then devotes its resources to the ripening of the seed at the expense of further bloom. The gardener and flower arranger wants an ocean of colour not the rattle of ripening seed pods, so keep picking the blooms when they are at their best.

Feeding Cordon grown plants

Once the cordon-grown plants are established they should require little extra nourishment, provided the winter groundwork was correctly completed. These leguminous plants fix nitrogen from the atmosphere; also the extending root network should be able to absorb sufficient major and trace elements along with the intake of water from the soil structure. Should there be a prolonged dry spell in mid summer, then the uptake of minerals may slow down to the detriment of the blooms destined for exhibition. Judicious feeding in the way of liquid feed at dilute concentrations given to the root area, or as a foliar feed, may be indicated. It is better to feed the plants at half, or even quarter value of normal strength for the particular product used and repeat after a few days with a similar application, rather than try to effect a remedy with one massive dose. Do not water during the warmest part of the day, it will just be evaporated to the extra stress of the plants. It is safer to apply water and feed in the cooler part of the evening or very early in the morning so that the plants are dry by the time that the burning rays of the sun reach the rows of Sweet Peas. Water droplets on leaves and blooms act like magnifying glasses and cause scorch marks on the vegetation. On a very porous sandy soil there may be a need to give extra feeds if there has been a lot of rain which has leached all the nutrients down to the subsoil level below the reach of the root system. Or finally, some gardeners

would give a quick acting feed at the end of the season, to perk the plants up and to provide an improvement in the quality of late blooms for a further show or two. In other words there is little point in applying extra feeds until the stems are shortening and the quality of the flowers is deteriorating and even then, moisture maybe the real need. In cool, moist seasons the growth of the plants goes on through to late summer without problems. The fertiliser selected would usually be one with a high potash and phosphate formulation, but low in nitrogen. Such preparations are available from specialist firms, such as the "Chempak" preparations. Remember that over-dosing the Sweet Pea plot with fertilisers may be building up a problem for future years. Historical publications will refer to the use of soot water and suspensions of farmyard manure being applied to the Sweet Pea plants, but quality samples of these ingredients are not so readily available in these years and the proprietary product is probably better standardised for strength and ingredient components.

Feeding Naturally grown plants

The same principles described for cordon plants can be applied to those Sweet Peas that are grown in the natural fashion. Plants that are grown on the patio or in containers or window boxes will need regular checking for moisture level in the soil or potting compost used. Since there is a more restricted root run in these containers it may be prudent to give dilute feeds from the time that the plants approach maturity. Keep to high potash and high phosphate feeds to ensure production of plenty of flowers rather than a lot of sappy green growth. But if other plants such as petunias, trailing lobelia and fuschia or geraniums are being grown in the same containers to give a mixed plant display, then a dose of nitrogen every third feed may be a good compromise to maintain a balance for all the plants.

Watering Cordon grown plants

In recent years we have come to appreciate that water is a valuable and restricted commodity. So ad lib watering of the crop should be curtailed and moisture given only when and how it will serve the plants best. There is little point in spraying water about during the heat of midday in the height of summer. It will quickly evaporate and the plants will be worse off for the operation. Supplies of water should be directed to the root run area and if a watering can is used there is benefit in drawing out a shallow line with a draw hoe, watering into this line and then pulling the soil back over to control evaporation. Some growers would prefer to use either rain water or tap water that has been stored for a day or two in a large butt, with the theory that these are less chilling than water straight from the tap. Such storage has the added advantage that the risk of chlorine damage from fresh tap water is averted. The use of overhead garden sprinklers would only be of use in the early part of the season, because, once the blooms are cropping, such continued spraying is

Plate 13: A multi-vase exhibit of 9 x 15 stems, all the long stemmed blooms are well spaced for judging.

Plate 14: Bush grown Sweet Peas providing a floral hedge in the garden.

more damaging than heavy rainstorms. Some gardeners would favour the use of a gently running hose pipe fitted with a coarse rose that will jet the water to the base of the haulms, but this activity should be restricted to late evening or early morning for best conservation of the moisture. Late evening watering has the disadvantage that a cold night following this procedure may cause a shock to the plants and result in the dreaded "bud drop" about 10 days later. High moisture levels later in the season may also promote mildew damage to the older leaves and consequent leaf drop.

The most convenient system to water rows of cordon Sweet Peas is through a trickle hose type method, provided that the local water supply authority has not imposed a ban on the use of hose pipes. There are several different systems on the market but they all basically allow droplets of water to escape from a long length of plastic or similar material. These systems of trickle hose, leaky pipe, seep hose, whichever you choose, are laid the length of the row and connected, using an approved non-return valve, either to the water mains direct, or through a pressure control valve; or even connected to a rain water butt. The water supply is allowed to run gently for a length of time giving a steady and controlled supply of moisture direct to the roots. An elite system can be set up with moisture metering and electronic control of the water flow.

The ultimate objective is to conserve water for when it is most needed and mulching of the soil pathways can assist in limiting evaporation very effectively, provided that it is kept just away from the plant stems to avoid scorching these tissues.

Watering Naturally grown plants

The principles outlined for cordons also applies to those plants grown naturally, except the activity might have to be more frequent for container grown plants that may be deprived of natural rain by overhanging buildings or just the umbrella effect of the foliage. Water retaining granules or gel formulation added to the compost when the containers are being planted up may be a long-term benefit to the plants.

Sweet Peas being grown in pots should not be left sitting in puddles of water in their pot saucers as this quickly leads to root rot and the demise of the plants.

Layering Cordon grown plants

Sweet Peas that are grown in the restricted fashion of a single main stem tied to its supporting cane soon reach the top of the cane, but are still only just starting to flower and can go on for better things yet. In fact, in a good year, in mid-summer a cordon Sweet Pea plant can grow at the rate of 15 to 18 inches per week and eventually reach up to 20 feet, or more by early autumn. To allow the plant to attain its full potential it needs to be lowered, or "layered" from its cane once or perhaps more times in the exhibition season and retrained up another cane further down the row. Please do not confuse the action of layering

Sweet Peas with that of root layering rhododendrons, carnations, strawberries, etc. where the objective with these other plants is to root lateral shoots and create new young plants from the mature mother plant.

Once the row of cordon plants has grown up to a height of five feet or so, each plant is detached from its cane. All the raffia and fillis ties are cut, or the rings removed, or the plastic Tapener ties snipped through, working from the bottom upwards so that the fragile head of the plant is supported to the end of the operation. Take care not to cut or damage the haulm and gently lay it on the soil surface in a straight line. If you start at the end of a row you will need to drop four, five or six plants before the next one can be turned up and attached to the first cane in the row with at least six inches of upright growth. Some growers layer their plants so that the tip of the plant reaches the required cane down the row and then allow the growing tip to bend into the vertical plane naturally. They start the tying-in process when the shoot has made a few inches of growth up alongside its new cane. Other growers may be keen to exhibit flowers from their plants as soon as possible after layering and they would put the layered haulm to a cane which allows two or more feet of haulm to be tied in, as is the case shown in Plate 8. The flower stems on these plants will be straighter from an earlier date after layering.

Layering is easier in periods of dry weather when the haulms are more flexible and pliable than when the plants are full of sap and they tend to crack and split. If the layering has been done in a fine spell of weather, the plants will respond with rapid growth if they are watered generously after the rows have been lowered and the plants' growing heads are at their new canes. Of course, so much water would not be necessary in wet summers. The plants are now "set" to their new positions.

The layering of double rows of Sweet Peas follows a logical sequence down the length of row one, then the first few plants in the neighbouring second row are untied, brought around the end post and tied into the last few canes of row one. Layering then proceeds down the second row to the end, when the first few plants from row one, (which have been laid out on the ground), are now brought around the other end post to their new stations in row two. It all sounds complicated on paper, but in practice it is simple and logical! It just takes time and patience with a degree of care to avoid damage to the haulms. The loss of a few leaves or the odd flower bud is of no consequence. However, if the growing tip accidentally gets snapped out, then look for a nearby side shoot, or abandon the plant, remove the cane and spread the next few plants out a little more by moving their cane tops down the row to fill the gap.

In the case of layering a single row of canes, the row has to be originally set out with an extra 5 or 6 canes, at the required 8 inch spacing, at one end of the row. The first five or six plants are then layered onto these empty canes. The rest of the row is then layered in sequence and eventually leaves the 5 or 6 spare empty canes at the far end of the row. When time comes to layer for a second time, then the process is reversed in the opposite direction. If garden space is at

Plate 15: Bush grown Sweet Peas supported on wire netting and giving an abundance of colour.

Plate 16: Sweet Peas being grown for a commercial seed crop are admired by N.S.P.S. members.

a premium and there is no room at the end of the row for these spare canes, then an alternative method is to layer groups of five or six plants in a criss-cross fashion with the next five or six plants in the row. One group of five plants heads south down one side of the row, whilst the next group of five travels north on the other side. In other words these two groups swap canes and so it proceeds down the length of the row.

A slightly modified technique may be used when layering a double row of plants that have been set out from a single line down the plot and alternate stems have been trained up canes splayed out to overhead wires. Because these canes form a letter "V" when viewed from the end of the row, each of the separate haulms can be layered into the supporting "V" and kept off the ground. The haulms are now away from the risk of being trampled on and have better air circulation under and through the bundle of haulms, rather than lying in a heap on the soil surface. Indeed, with a little more effort, the double rows of cordons planted out in with the rows 12 inches apart, the haulms can be layered into the middle gap, onto the soil surface.

Layered plants should meet their new canes in a gentle curve if they are to be tied in and then the ties are put on at each leaf joint of the haulm up the new cane. But the growth of all the plants down a row is seldom uniform in height. In places a compromise has to be made for a shorter or taller plant being moved to a cane nearer or further away, or two haulms sharing a cane for a few days, before one can be moved on to the next. Alternatively new canes can be imported into the row, or at the ends, to accommodate the odd displaced plant and make them all fit in neatly.

As the work progresses down a row the haulms can be gently laid one on top of another for the short distance before the individual heads are turned up to their new canes.

Layering seems to improve the quality of blooms; perhaps because there is less hydrostatic pressure required to conduct sap up the stem for a newly layered plant. Though even if the haulm is tied in with one to two feet of growth in the new vertical, it will still take 10 to 14 days for blooms to be produced which are free from the bent stems which result from the layering geometry. Keen exhibitors will check their show calendar and complete their layering work at least a fortnight before a major show is scheduled. Later in the season, the second or third layering sessions can be phased across the plot; with some rows being done one week and other rows a few days later. Thus allowing a good crop of straight stemmed blooms to be cut for exhibition for all those weekend shows that require fewer vases.

Plot maintenance during the growing season

Apart from watering and feeding as described above, the work on the plots for both cordon and naturally grown plants will consist of control of weeds by hoeing or hand weeding, (but no chemicals!), and maintaining a good soil tilth

in the path areas. Regular inspection and work on the plants soon results in the soil between rows of Sweet Peas becomes compacted like a motorway. This can be avoided, (and shoes and boots kept cleaner!) if temporary paths using old boards, planks or slab stepping stones are put in place. The area between the rows and around these paths can be lightly hoed every now and then to aerate the soil, reduce compaction, delay evaporation of moisture and control germinating weeds. But take care not to get too close to the plant stems or go too deep and destroy the surface roots of the plants. Alternatively the whole of the area between the rows can be mulched with straw, (free of selective weed killers), peat, or chopped bracken; or sown with a quick growing rye grass. Do not use grass clippings or fresh farmyard manure as mulches as they both will continue to rot and heat up, to the detriment of the plants and their root systems. They are not very clean to walk on either!

Keeping the plants healthy; pests and diseases

Early in the season the soil pests are the primary problem. Attacks by slugs and snails in the cold frame and to the early-planted Sweet Peas can cause damage by removing the growing shoots, or weaken the wall of the stem. After planting out, cutworms, leatherjacket larvae and wireworms can cause sudden collapse of an otherwise healthy plant because of attack on the root system. On occasions the margins of the leaves may be nibbled away, due to attack by pea weevils, but this should not be too serious, unless there is a massive infestation in the soil.

More problematic are those pests attacking the stems and foliage of the plant during the growing season. Small caterpillars have a habit of chewing through the delicate young stems, destroying the growing point and ruining the chances of the plant. Vigilance to pick off these moth larvae or protection with systemic insecticides has to be practised. Because they are well camouflaged, these caterpillars are often difficult to see, until the damage has been done. Chewed leaves and the black dross of their excreta may be the first visible signs. Sometimes a sharp rap on the cane or a shake of the haulm will cause the interlopers to fall to the ground, from where they can be eliminated. Other species of caterpillars, known as “leaf maggots”, may bore into the growing stem a few inches below the tip of the plant and soon cause collapse of the head of the plant. In this situation eliminate the culprit and look for a side shoot to take over as the leader.

Aphids, in a variety of colours, green, black or brown, also find the succulent tissues of the Sweet Pea a valuable source of food. Greenflies may invade as a few individuals or arrive in large numbers from a neighbouring field or crop. This pest damages the plant mechanically by puncturing the tissues and sucking sap, but at the same time there is the danger of viruses being transmitted on the mouthparts of the aphid.

In recent years pollen beetles have increased in numbers, as their preferred

Plate 17: Bud drop: demonstrated by the pale, dry, non-developing and missing buds. Background stem shows signs of recovery.

Plate 18: Sweet Pea virus infection; streaked colour in the florets with crumpled and distorted foliage.

feeding plant is the oil seed rape. The prevalence of the bright yellow fields in May and June in some parts of the country indicates the vast numbers of pollen beetles that there may be in a given area. As flowering of the oil seed rape finishes, this horde of beetles starts to look for alternative sources of pollen food. Sweet Peas, roses and other bright yellow flowers all provide an attraction. Pollen beetles crawl into the keels of the Sweet Peas. Whilst their numbers may do slight physical damage by dilating the keels, they cause more frustration to the exhibitor, florist and floral art worker alike, because of their habit of crawling out of the keels when the pollen supply is exhausted and ruining the pristine effect of the flower arrangement or exhibit.

Birds such as sparrows and blue tits may be attracted to the pollen beetles in the keels of the flowers and peck the blooms to reach this supply of protein. Unfortunately some birds seem to have developed the vice of pecking flowers, (primroses in the spring are frequently targeted), so the only cures are to offer an alternative source of food, erect an elaborate system of bird scarers, or in extreme situations, to net the Sweet Pea exhibition plants in a fruit cage. The use of silhouettes of hawks, cut from cardboard or stiff plastic and perhaps decorated with a few bits of flapping fabric, then suspended over the Sweet Pea plot to flutter in the breeze seems to work well and this winged scarecrow can be moved from place to place to stop the sparrows and blue tits getting blasé about the scarer.

Eighty years ago, the first format of this booklet was written in an era before plastic netting had been developed and the authors suggested that shooting might be the best deterrent against bird attack on Sweet Pea plots! Fortunately gardening has become a little more humane over the years! Early morning gunfire from a 12 bore would probably raise protests from the neighbours and, so far, no one has recorded the use of one of the propane fired pigeon scarers to protect their Sweet Pea crop. But there is a first time for everything!

Mosaic virus is a typical and common viral disease of Sweet Peas spread by the aphids. The symptoms are most distinctly seen on the flowers when the solid colour of the cultivar is broken up into stripes, veins and blotches giving a variegated effect. Or white and cream cultivars take on a pink discoloration, especially around the edges of the blooms in the early stages of the infection. Please refer to Plate 18 for a photograph of a plant affected with mosaic virus. The novice grower of Sweet Peas may think that these affected plants are a novelty cultivar and be tempted to try and harvest seed, or blame the seedsman for sending seed not true to catalogue description! Neither case applies!

The mosaic virus also affects the green parts of the plant resulting in damage that is fairly easy to recognise. The top youngest leaves are first affected; they become marbled and veined with a yellow or grey mosaic pattern. This pattern is easily seen if the leaf is held up to the light. These symptoms travel down the plant, leaf by leaf, whilst at the same time the growing head becomes curled and distorted, often referred to as “fuzzy headed”. There is no cure for these affected plants. They are a risk to the rest of the crop, so they should be pulled up and

burnt as soon as they are found. It is better if they are not put on a compost heap in your garden as they can still be feeding aphids and transmitting disease back to the rest of the plants. Remember also that the viruses can be transmitted from plant to plant by fingers, knives, scissors, etc. so good hygiene on the Sweet Pea plot is advised. The pea aphids spend the winter hibernating on other leguminous plants such as clovers or perennial peas and these plants may harbour the latent viral infections. In mild autumns they may still be mobile and flying, even in November, so the seedlings in the cold frames can also be at risk; but the symptoms of the infection may not be seen until active growth of the plants starts in the following year. Prevention of viral infections requires the limitation of aphid attack. This can be done by keeping the garden free from weeds that may act as alternative food sources. Insecticidal sprays only work by direct contact with the pests or by penetrating into the plant to systemically kill the aphids when they feed on such treated crops. Both methods are, unfortunately, too late to stop the initial viral transfer, but can limit the onward transmission. Insecticidal sprays should always be used according to the manufacture's instructions; as to suitability for use on Sweet Peas and other crops, as to dilution rate, how long a diluted spray can be kept and especially any precautions to be observed by the operator. There is no advantage in blending two insecticides in the one spray; in fact the mixture may be worthless. Some insecticides can be blended with specific fungicides for simultaneous use, but only by following the manufacturer's advice. Care should also be taken of using sprays when the plants are in full bloom as the spray can damage or mark the delicate tissues of the blooms rendering them useless for exhibition or floral decoration.

As plants age, some of them will show signs of the main stem taking a brown stained appearance, the stem tends to contract in thickness to a woody stick and the tissues above have a restricted supply of sap and consequent failure to grow. This is the problem of "streak". Plants should be pulled up and destroyed as soon as the symptoms are observed.

Moulds and mildew can affect the leaves and stems of Sweet Pea plants especially after layering when there is a mass of vegetation close to soil level. Fungicidal sprays can be used with discretion to help limit the spread or older leaves can be cut away to improve the air circulation of the layered haulms. Very often the affected leaves will wither and fall away without detriment to the plant.

In a survey of National Sweet Pea Society members in 1995 they were asked to list those pests and problems encountered in their gardens. In addition to the above items they also mentioned earwigs, doves, cats, moles, squirrels, fox, woodlice, whitefly, rose chafer and yes, children! Dogs were not considered a hazard to Sweet Peas and in fact one grower recommended them as a deterrent to other forms of pest, mainly the two-legged variety!

Not a disease or pest, but the physiological problem of "bud drop", as depicted in Plate 17, is a cause of worry, frustration and consternation to growers in

Plate 19: Leaf scorch progressing up the plant.

Plate 20: Lathyrus nervosus.

many summer seasons. In this condition the young buds form on the immature flower stems but fail to grow, expand or develop. Instead they wither, become papery brown and drop from the flower stem when it is touched or tapped. The stem may continue to elongate, but instead of having the desired four florets it has any number down to zero. There are many different theories as to the causation of bud drop, but it may be the plant's reaction to environmental stress. It is not able to produce fertile seed from those blooms because of adverse environmental conditions so it aborts the buds. Adverse conditions are usually a combination of warm days, cold nights, (especially a touch of frost during the night), heavy rain showers, too much cold water applied to the roots after a dry spell, or combined with excess vegetative growth of the plant. Typically the peak of bud drop is about 10 days after the adverse conditions occurred. There is little that can be done to limit the after effects but some precautions can be taken to reduce the chances of bud drop happening. Some growers would leave side shoots on longer to take the pressure of growth away from the flowering stems, or leave one or two leaves on the side shoot, but remove the growing tip of these lateral shoots. Care with watering, provision of shelter from frosty winds and avoidance of excessive use of fertilisers when preparing the Sweet Pea plots would be advised. Otherwise, it is just a matter of waiting for the plant to grow out of the bud drop problem. Naturally grown plants seem to be less susceptible to bud drop than those grown by the cordon method.

During the growing season some plants may lose their growing point on the main haulm. They are described as going "blind". If a side shoot is still available lower down the haulm, then this can be trained on as the leader, but take care in layering these plants as the junction of the side shoot to the main stem tends to be fragile and will snap out if not carefully handled.

In some years, plants of various cultivars may show a progressive loss of leaves from the bottom of the plant gradually upwards, almost to the growing point, but active growth continues. Again this is not a true disease, but the condition, known as "leaf scorch", is a characteristic of the cultivar and may be worse in some gardens than others. The leaves become yellow, dry, brittle and fall away, as shown in Plate 19. Flowering continues until the plant is virtually leafless, so often the season of good bloom production is shortened for these cultivars. The condition is more noticeable on light soils in dry seasons.

Scorching of blooms by intense sunlight, mainly in the orange and deep bright red shades, can be controlled by covering the cultivars with sheets of polythene or muslin, which cut down the light levels. To provide protection from the rain and strong winds, some growers of exhibition blooms build a more elaborate construction of polythene covers. They consider that their flowers are less likely to be attacked by pollen beetle under these covers and boast that they have the luxury of being able to work on their plots in all sorts of weather!

Exhibiting Sweet Peas

Having grown some quality Sweet Pea flowers, either on the cordon or bush method, you may wish to try your hand at exhibition work. Depending on your ambitions, you will be able to find show schedules with classes requiring from just 5 or 6 blooms in a neat vase at the local village horticultural show, to the major classes in the two annual National Sweet Pea Society's exhibitions. At each of the National Exhibitions every year the premier class is for twelve vases of distinctly different cultivars, each vase to hold 15 stems. This means 180 immaculate blooms in one exhibit and is thus the greatest challenge in the world of Sweet Pea exhibitions! The Society aims to hold a National Exhibition in the north each year and an alternative venue for the other show in the south, thus giving all growers an opportunity to compete for the major classes. At one of these venues the Daily Mail Cup is awarded to the winner of the 12 vase 15 stem class, whilst the Garden News Challenge Trophy is awarded to the winner at the alternative show. The award of these two prizes rotates between the northern and southern venues year by year and has to be the ultimate aim of the exhibitor; with a trophy for "Best Vase in Show" as an equal objective.

But at the same National event the absolute novice and growers who may only have space to grow 100, or less, cordon plants also have competitive classes. These classes are as keenly contested as the larger elite multi-vase sections.

Floral art classes are also popular with the exhibitors of Sweet Peas. In these classes both the delicate form of the bloom and its perfume give a combined advantage over many other flowers and the added advantage of long thin pliable stems make them easy to fix in an arrangement. Both the National exhibitions have several classes for floral art. Using baskets, bowls and vases the floral art experts and novices provide a sea of colour on the show bench.

How does the exhibitor ensure the best flowers from his or her plants on the day of the show? There are no guaranteed ways of timing blooms so that they will all be ready on a set date. Rather, by good cultivation, attention to detail, following some of the advice given on earlier pages in this booklet and a small measure of luck you might achieve the results that give satisfaction and reward for the effort expended. By planting out several plants of the same cultivar, (as in Plate 9), it is hoped you would have enough blooms from a proportion of the plants to set up a good vase. The classes for novice exhibitors will ask for fewer stems of Sweet Peas than would be wanted for the premier classes. And so it is in both the local and national shows. Certainly the beginner will be welcomed and sometimes overwhelmed with offers of help at any of the shows which are affiliated to the National Sweet Pea Society. This is because the Society has a long tradition of assisting its newcomers, who in their turn help the next generation of exhibitors.

The first thing to do is to get exhibition schedules for a number of shows from the show secretaries well in advance of the closing dates for entries. Shows are

Plate 21: Lathyrus Belinensis.

Plate 22: Lathyrus Vernus 'Albo Roseus'.

advertised in the N.S.P.S. Annual and Bulletins, also in the gardening press. Then plan and mark out on a calendar, or in diary, those shows that have classes for which you could provide an entry, or entries, over a period of the summer weeks. Make out your written entry to each show to arrive at least a day ahead of the closing date, together with the entry fee; late entries may be accepted, but there may be a penalty fee imposed. Some shows will take entries by telephone, whilst other shows just open up the doors and take entries on the day of the show. Check the schedules to make sure of the rules regulations and requirements for entries for your selection of show venues.

The show organisers may provide exhibition vases, baskets and bowls and this will usually be stated in the rules of the show in the schedule of classes. If not, then make sure you have adequate and suitable containers for the classes you have entered. Sweet Peas are traditionally exhibited in vases that are 2 inches in diameter at the top and stand about 6 to 8 inches tall. They are made from spun metal or plastic materials and last a lifetime. The basic equipment required to set up a vase of Sweet Peas is shown in Plate11. Baskets and bowls can be obtained from florist shops or garden centres in a variety of styles, shapes and sizes, to suit the number of Sweet Pea stems to be displayed. Such containers may need a waterproof insert to hold wet "Oasis" or alternative staging materials as the stems have to be in water or water retaining material.

The number of blooms needed for the show or display, plus some spares, can be cut up to 24 hours before the time of judging and held in water to which, perhaps, an additive has been included to prolong the life of the flowers in water. This allows for the blooms to be harvested, well in advance, if adverse weather is forecast. Usually the blooms will be picked or cut the evening before the day of the show. Some of the larger shows have provision for the exhibits to be created overnight or staging may even take place throughout the night hours for judging in the early morning, before the public are admitted to the show hall or marquee.

If the exhibitor is tempted to add a flower preservative to the steeping water in which the blooms are being held pending staging, then it is prudent to experiment with such a product well before the show date, as some of these chemicals can induce such a high intake of water that the blooms become spotted and damaged. The cells of the petals become waterlogged, swell, loose their colour and form "windows" of pinhead size, but easily seen by the judge who will hold the vase of blooms up against the light, looking for such damage and defect. Result: down-pointing against other exhibits in the class. A similar spotting effect will occur with the action of the rays of the sun through drops of water left on the blooms after a shower of rain.

If you have to pick Sweet Peas when they are wet or moist from dew or rain, then a quick downwards swish of the small bunch of stems will flick off most of the dampness. They can then be stood in a well ventilated, covered area to finish drying before transporting to the show. A fan blowing cool air in a steady stream can be of great help here. Do not try to transport blooms any distance to

a show when they are still covered with water droplets, as they will badly mark and spoil your exhibit's chances of success.

Getting your stems of Sweet Peas to the local village or town show may be no difficulty, but when it comes to travelling to more distant venues, then a little more planning needs to be considered. If public transport is to be used then the dry blooms can be laid in florist boxes, loosely tied in small bunches with blocks of polystyrene foam or crumpled tissue paper between the bunches to stop them from rolling around. Each bunch may be also wrapped in soft tissue to help protect the florets. Prior to packing, the stems need to be wiped of water if they have been standing in holding vessels. Some exhibitors also prefer to carry "dry" to the distant shows when travelling in their own cars, to reduce the risk of spillage of water from containers as round-abouts and potholes are negotiated. Other exhibitors use a variety of containers and ingenious methods to carry their blooms with the stems in a small amount of water at the bottom. Small buckets, large ice cream cartons, crates of milk bottles etc. are pressed into service. Buckets etc. can have a piece of wire mesh crumpled up and placed in the bottom and more wire mesh stretched and fixed over the top. The blooms can then be spaced out and stood upright to keep the florets apart and the stems straight. Such filled buckets of blooms, (keeping individual cultivars separate), can then be wedged together in the car or van. To reduce the risk of spillage even further you can cover the containers with cling-film or kitchen foil over the top layer of wire mesh. The stems of the Sweet Peas are then stabbed through the film to allow them to stand in the transport water. If large ice cream cartons are used, keep the lids and drill holes to take the Sweet Pea stems rather than use a wire mesh cover. Have a trial run a day or two before your first show to iron out any problems, rather than having a disaster on the show day.

The exhibition bloom

A single stem of Sweet Peas with its florets is often referred to as a "spike", (see Plate 10) and the grower is looking for a matching set of stems or spikes to create the exhibit. Each floret is composed of several distinct elements. At the back there is a single upright petal, the "standard", with two "wings" protruding upwards and outwards in front. Between the wings nestles the boat shaped "keel", which in turn contains the reproductive organs. As the flower bud expands into the open bloom the green bud casing splits to form the "calyx" of the floret. Many cultivars of the modern Spencer type Sweet Peas have standards and wings which have folded or crinkled effect, known as "wave", which adds visual depth and substance to the bloom. This waved effect can also give the bloom an enhanced colour as the light is reflected off at different angles providing sparkle, much like that from a butterfly's wings.

The Society has issued rules for judges. This describes the five criteria that are assessed for meritorious exhibits, which are:

Plate 23: Lathyrus Latifolius 'White Pearl'.

Plate 24: R.H.S. / N.S.P.S. trials at Wisley Gardens in 2005.

- Freshness, Cleanliness and Condition.
- Form, Placement and Uniformity.
- Trueness of Colour.
- Size of Bloom in Balance with Stem.
- Presentation.

A pointing system is given for the first four of these criteria to allow the judges to sort out exhibits that are close in merit.

Basically the exhibitor is wishing to present a vase of Sweet Peas of which he or she is justly proud. They should be clean, fresh, in full bloom, without damage from weather, pests, or disease, true to the colour for the cultivar of single cultivar classes and all the florets should be neatly formed and well placed on their stems to give an overall balanced exhibit.

Four florets on each stem are the ideal as usually the top floret can be fully open without the bottom floret looking tired or faded. There would be no penalty for the inclusion of stems with five florets which are fully open and in fact one or more of these "fives" in the centre of the vase can add "weight" and substance to the exhibit, making it that bit more eye-catching to the judges. In the early and late part of the season the exhibitor may be short of good "fours" and have to resort to a well-formed three-floret substitute, accepting that the judges may have to down-point the vase.

There are still many debates in the Sweet Pea exhibition world of the merit and/or demerit of "duplex" blooms. These are blooms which have two standards at the back of the florets, placed one in front of the other. For formal vase classes it is usually considered to be a fault and the vase down-pointed. In contrast, in floral art classes judged under N.A.F.A.S. rules they would probably be quite acceptable, with the additional petals adding extra colour and form to the flower arrangement.

Single vase exhibits in large Sweet Pea shows may be separated into different colour sections, often under the classification numbers designated in the N.S.P.S. Colour Classification List published each year as a supplement to the schedules for the National Exhibitions. In these shows the exhibitor has to place his entries in the right classes to avoid the dreaded "N.A.S." (not according to schedule) rejection by the judges! Novelties, seedlings and unlisted cultivars would be included in their appropriate colour classes.

In multi-vase exhibits the judges will be looking for a balance and blend of distinctly different colours from the whole spectrum of colours available to the grower and each vase in pristine condition. Quite a challenge, but the exhibitor whose vases feature in Plate 13 certainly got it right! Two vases of the same cultivar cannot be exhibited in a multi-vase class and vases of cultivars with look-alike colours would be down-pointed. Hence the need to be careful in selecting the range of cultivars to be grown in a season.

Vase entries of Sweet Peas are traditionally decorated with two Sweet Pea leaves. One standing upright at the back of the vase behind the stems, the other, perhaps slightly smaller, at the front and inserted upside down imitating the

effect of a bow tie on the lip of the vase.

A quick check to recount the number of stems allowed for the particular class, as too many will certainly disqualify the exhibit and too few has not given yourself the best chance of a prize. A final check that no green fly are lurking behind a petal and the addition of the card identifying the cultivar completes the exhibit, ready to be placed on the bench, together with the exhibitor's entry card. All that one can then do is hope for a favourable decision from the judges, as happened for the vase in Plate 12.

But how do you make Sweet Peas stand upright, fixed in the vase so that the blooms do not sway about when the exhibit is handled and judged? Various materials can be used to pack the vases so that the stems can be placed securely and in a fixed position. Many exhibitors favour small bundles of pithy reeds or rushes with holes being punched into the reeds with a skewer or similar spiked tool to take each stem of Sweet Peas. The vase is half filled with water before the bundle of reeds is driven in. The excess reeds sticking out of the face of the vase are cut off with a sharp knife and the reeds driven a little further, at least a quarter of an inch, into the vase to leave space for topping up with more water, once the blooms have been inserted.

Other exhibitors prefer to use floral art foam, the green "Oasis" type material, cut into cone shaped pieces. Part-fill the vase with water and then the "Oasis" cones, which have now been well soaked, are then pushed into each vase so that they are depressed by about a quarter of an inch below the rim of the vase. This again provides space for topping up with water, once the exhibit has been staged.

Alternative materials that may be used to pack Sweet Pea exhibition vases include bundles of green bracken stems, (don't pack the vases as tightly as when using pithy rushes) or bundles of heather fronds. Paper or cardboard is not suitable for Sweet Pea exhibition work, in comparison with the use of these materials in staging dahlias or gladioli, but one exhibitor was seen to be using cut up apples to pack his vases prior to staging his blooms and the system worked too!

Depending on the number of stems required for the class, they are inserted into the packing in the vase in rows. The class may require 12 stems of a given cultivar, in which case either 7 could be placed in the back row with 5 in front, or three rows could be made of either 5, 4 and 3 spikes, or 6, 4 and 2 stems. The stems of the blooms in the forward rows may need to be shortened a little so that they do not hide the blooms behind. Each method displays the blooms in a fan-like arrangement allowing all the florets to complement the picture. It is a good idea to experiment with the different staging formats in the relaxed atmosphere of your own home rather than leaving the decision as to which design suits you best until show day. In a multivase class, all the vases would be staged in the same pattern to give uniformity to the exhibit.

An exhibition vase of 9 stems could have 5 at the back with 4 in front for best visual effect, but 6 and 3 would work well too.

A vase of 7 stems would usually be arranged with 4 on the back row and three in front of them, but a complete arc of seven stem in a straight line across the vase makes a very dramatic feature.

A class requiring 5 stems in a vase would usually have them arranged in one line as 3 behind 2 stems makes a rather bunched arrangement.

Always display the blooms to their best effect and whilst it is tempting to put a deformed or damaged bloom in the middle where it might be partially hidden by the other florets in front of it, a good judge will invariably detect it and mark accordingly.

If the schedule states that a class is for "Not more than 7 stems of Sweet Peas", then it is quite permissible to stage a fewer number than 7 if the exhibitor is short of good quality blooms. But obviously the judge will only give credit on a proportional basis for the number of stems staged against the maximum number that is allowed in the class. But a vase of 6 good quality blooms may beat a vase that has 7 poorer quality stems if judged on a points system. However a class which states "7 Stems of Sweet Peas" requires the full quota, otherwise there is the risk of the dreaded N.A.S.!

The elite classes that calls for 15 Sweet Pea stems staged in typical 2 inch vase takes some practice and a fair amount of skill to get all the blooms neatly arranged in an even fan shaped display. A pattern of 7 stems in the back row, 5 in a line across the centre and 3 more blooms in a smaller row in the front is a popular choice by many exhibitors. Alternatively, 9 and 6, or 8 and 7, as two rows across the top of the vase gives a bold sweep of colour. An arrangement of 8, 5 and 2 provides a high fan and is even more dramatic in multivase classes when the vases are stacked one behind another on tiered staging. The actual choice may depend on the length of stem of the blooms available and whether it is a class for vases of single colour, or if mixed cultivars are required in the same vase; the "Mixed vase" classes.

Many shows would schedule for vases of mixed colours of Sweet Peas. Read the schedule carefully as to the number of different colours allowed. There are classes for vases containing a specific number of stems of two different cultivars, but more usually three or more colours are the order of the day in a mixed vase. Here you would try to find blending colours of different cultivars and arrange them in a balanced pattern in the vase to give an eye-catching display on the show bench.

If you look at the face of a Sweet Pea bloom you will notice that the bottom floret can be facing either to the right or the left. On building up an exhibition vase it will be found that the exhibit will have a better shape if the "left handers" are kept to the left of the arrangement whilst the "right handed" blooms are placed on the other side. In this way the florets of adjacent bloom will interweave and prevent big gaps being left in the design of the exhibit. The final result will be a symmetrical and pleasing display.

New exhibitors may be tempted to think that the bigger the bloom the better the chance of winning. This is not always the case. The first priorities are for

quality, refinement and balance in the exhibit. Flower heads that are gappy in between the florets, or where the florets are bunched together at the top of the stem, do not constitute good exhibition spikes and they will be down-pointed in an exhibit.

With good cultivation methods most of the stems will be nice and straight. Those which have a slight curvature can be straightened by holding the stem at its base in one hand and gently drawing the stem between thumb and first two fingers up the length of the stem two or three times, maintaining gentle pressure as the stem is pulled through. Watch how the seasoned exhibitors rescue blooms that others would reject because the stems were somewhat bent!

Floral art exhibits

The floral art classes staged under N.S.P.S. rules may also be pointed by the judges and in this case equal value of marks is given for quality of the plant material and for decorative effect. The show schedule will describe if flowers and foliage other than Sweet Pea cultivars may be staged in a particular class and the type of container to be used. The flowers and foliage always have to be in water, except, perhaps those classes for a buttonhole or corsage arrangement. The blocks of green floral foam, previously soaked in water, are most useful in supporting the stems of flowers and vegetation used for these exhibits, but may need to be spiked or wired to the base of the container to provide stability of the final result.

If other flowers are allowed in the floral art exhibit, or if the decoration is to be used in the home, it will be found that Sweet Peas blend well with a variety of garden flowers. Long stemmed annuals, smaller roses, carnations, pom pom dahlias, grasses and, of course, gypsophila, which is the traditional combination plant for Sweet Peas; all these flowers combine harmoniously together in the one container. Don't forget the Lathyrus species for display on their own or in combination with the Spencer cultivars. The floral art expert will soon think of a long list of other flowers or foliage that can provide similar combinations to good effect, or a walk around the garden may be enough to provide inspiration.

Some floral art classes may allow the use of drapes and accessories, this is when the imagination and inventiveness of the exhibitor is allowed to run riot! But if Sweet Peas have to dominate the exhibit then the whole display should be light and airy to show the blooms to their best advantage. Look for cultivars that have blending colours or contrasting hues that do not clash. That is, unless you are competing in a class which calls for strident colours to depict a modernistic theme! By visiting a show or two to see how others tackle the floral art classes and with some practice at home before the event, the novice can gain confidence to try their hand at this skill. Plants grown by the natural method will provide stems that are adequate for many of the floral art classes, but the larger exhibits may need the longer stemmed Sweet Pea blooms of those grown on cordons. Many of the "Old Fashioned", that is, the pre-Spencer cultivars,

make excellent blooms for floral art work. They have a delicate structure to the florets, a wide range of colours, fine whippy stems and, best of all, an exotic perfume. They are guaranteed to catch the judge's eyes and nose! These pre-Spencers are becoming very popular once again, they feature in many of the seedsmen's catalogues and some hybridisers are breeding new cultivars of this type to meet the demand from gardeners and exhibitors.

Blooms for competitive floral art work will need to be fully open in most cases unless some juvenile buds are required for contrast within the exhibit. But when blooms are cut for decorating the house or other displays, they can be taken with the top floret still closed which will give the arrangement a longer display life and for the observer the enjoyment of watching these blooms develop.

As stressed before, it is important to read the rules of the schedule carefully for floral art classes as there may be a limit on the number of blooms allowed in the exhibit, or if the staging material can protrude above the top level of the container and certainly concerning the dimensions that the exhibit can occupy on the exhibition bench, in depth, width and height. If Sweet Pea foliage is asked for in such an arrangement, make sure all the stems of developing young buds are first removed if there is any limit as to the number of flowering stem allowed on display.

Grow Sweet Peas and win friends

Whilst many stems are used by the grower for their own show and decorative purposes, there is no doubt that a bunch of Sweet Peas given away to friends, neighbours or family is the ideal way of showing friendship. The same can be said for passing on some of your spare plants or even excess seeds to a neighbouring gardener for them to learn how to grow and enjoy their own crop of blooms. But try saying "Thank you", or "Hello and welcome", or "I'm sorry", or "Hope you are soon better", or "Loves you!" with a bunch of Sweet Peas in your hand and see what a different effect your message has! That is the magic of Sweet Peas, they are so adaptable to the occasion.

Extending the range of interest in Sweet Peas

The Spencer cultivars make up the vast majority of sales of Sweet Pea seed, but there is a growing interest in the pre-Spencer cultivars and also in the Lathyrus species, as both the annual and perennial species. Not to be forgotten are the other types of *Lathyrus odoratus* that have been developed over the years. Many of these give good garden colour and cut flower properties.

The dwarf types, as the name implies, are extremely short, bushy plants growing not more than 12 inches high. This makes them ideal for edging, mass bedding or patio container work. Although they may be small in size, they have a marvellous flowering potential of small, delicate blooms on stems 2 to 3 inches long. Real little gems of the garden! The cultivars "Pink Cupid" and "Little Sweetheart" are two of the best in this size range.

The semi-dwarf, or intermediate range of cultivars, is a taller group at six to ten inches high. "Bijou" grows to 12 to 18 inches high, whilst the "Knee-Hi" range flower at three to four feet. Another popular group is the "Jet Set" type; again they flower well at about three feet high. The cultivars "Snoopea" and "Supersnoop" have the unusual characteristic of acacia leaf formation instead of tendrils.

Taller growing cultivars that have larger heads of bloom, sometimes 8 to 10 florets per stem, may be found under the names of "Galaxy", "Royal", "Multiflora" and "Mammoth" series of Sweet Peas in some of the catalogues. Because of the wealth of flower they make very good display plants in the garden, but the blooms are not so suitable for cut flower work as the bottom floret is usually faded before the top floret has opened.

Mention has already been made of the "Old Fashioned" or pre-Spencer cultivars, which also may be listed as the "Grandiflora" types. These are the range of cultivars that dominated the scene from the time of the first introduction of *Lathyrus odoratus* into this country in 1699; up to the time that the mutation of "Prima Donna" (Plate i) gave the first of the Spencer types having large florets with frilled and waved petals, early in the 1900's. It is worth growing some of the "Old Fashioned" in a sheltered spot in the garden each year for their perfume alone. Their delicate form and striking colours are a bonus.

Interest in the annual and perennial species of the Lathyrus genus has increased markedly in the latter years of the 20th century. Seeds and plants are available from specialist nurseries and collections of Lathyrus and related genera can be found in several botanical gardens. Two National Collections of Lathyrus species are registered with the Plant Heritage (National Council for the Conservation of Plants and Gardens) and work on this subject is progressing on an international scale.

Many of the Lathyrus species are well worth cultivating in the decorative garden both for their botanical interest and for their eye-catching effect. Early in the year, *Lathyrus vernus*, (Plate 22), looks impressive when planted with other spring flowering plants such as primulae or dwarf daffodils and tulips. *L. belinensis*, (Plate 21), provides a spectacular combination of colours in summer with vivid yellows and orange-red, whilst *L. chloranthus* gives a mass of dainty small florets with a solid lemon yellow coloration. In contrast *L. sativus* can have cultivars with flowers of varying shades of colour, but the blue selection is hard to beat; the colour of the summer sky. *L. tingitanus* has deep purple-red flowers on a tall growing annual.

When grown in clumps, the perennial Lathyrus species will give many years of pleasure and interest, whilst the annual species are generous with their seed production and are easy to resow each year. But perhaps the Lathyrus species most commonly grown is that of *L. latifolius*, the "perennial or everlasting Sweet Pea". It has several different colours to choose from to give strong growing and long lasting plants. It is very useful for decorating a trellis or archway or to scramble into open shaped trees or over tolerant shrubbery in a similar way to

the way that an informal clematis plant is grown. This is a plant that can be very happy tumbling down a bank, if pegged in at intervals to prevent the wind drifting it about.

Breeding and hybridising Sweet Peas

The Spencer Sweet Peas are self-fertile and once a seedling cultivar is "fixed", it will set seed that will germinate to give plants that are true to cultivar characteristics; colour of the blooms, robustness and form of the plant growth. To create new cultivars the gardener has to actively transfer viable pollen from one floret to another different parent flower at a critical time of the development of the young bloom. The seed from this cross is the F1 generation. When sown the following year it will usually give plants that have a uniform colour, but which may be different to that of the parents. Seed is again harvested; this is the F2 generation. It is sown to bloom in the second year after the crossing was made. There will now be a definite break up of the colours, form and other characteristics of the plants in these F2 plants. The plants with promising blooms in the way of colour, form and resistance to adverse weather conditions etc. are now marked for seed harvesting. The seed collected from this F2 generation has a better chance of being fixed, but only the patience of growing and harvesting, growing and harvesting, over a period of up to five years will prove that it is free of rogues and up to the standard that the hybridiser desires.

Many of the popular cultivars of the Spencer type of Sweet Pea that are now in the classification list were bred and raised by amateur gardeners. These growers get a lot of satisfaction knowing that they are extending the range of colours and form of the modern Sweet Pea for other enthusiasts to share. Their new cultivars can be grown at the various trials and be eligible for the awards on offer, with a special prize given to the raiser of the cultivar elected to be the best of those grown at the R.H.S. Wisley trials each year. Classes for seedlings are also a key feature of the Society's National Shows.

Growing Sweet Peas under glass

For those gardeners with spare greenhouse room, Sweet Peas can be grown for an early crop under glass. The "Early Multiflora" types will start to bloom weeks ahead of the Spencers being raised out of doors. Depending on how many blooms are needed, these early cultivars can be raised as a few plants in a large pot of compost, or half a dozen in a "GroBag" unit. Gardeners with more space can grow their plants in the greenhouse soil, training the haulms up canes, or by twisting the haulm around strings suspended from the greenhouse roof to pegs in the soil. Growing under glass is a possible way of raising those cultivars with delicate petals and colours that scorch when grown in the open garden. To obtain a crop of Sweet Peas under glass, the seed would be sown in September in a cold frame and the seedling plants transferred to the

greenhouse in January. After this, it is a matter of providing adequate light and careful attention to ventilation, watering and temperature control, to ensure that the plants are not cooked, frozen or dehydrated by sudden changes in the weather during the winter months.

Some of the Lathyrus species can also be rewarding to grow under glass in a slightly heated greenhouse. The "Lord Anson's Pea, *L. nervosus*, (illustrated in Plate 21), is easy to cultivate and three or four plants in a 7 inch pot with the growth supported on 3 to 4 feet tall bamboo canes makes a fine feature. The perfume from its beautiful florets rivals jasmine and this species is well worth a place in the conservatory or green house.

The end of the season – or is it?

Depending on the weather during the summer months, the vigour of both cordon and naturally grown plants will gradually fade. Those plants, which are still basically healthy, can be chopped up and added to the compost heap. Bamboo canes should be cleaned, dipped in a solution of disinfectant, (diluted "Jeyes Fluid" would be ideal), then left to dry out completely, before being stored in bundles in a dry place for the winter. Likewise, the support posts and wires can be cleaned and safely stored for another season's use. Pots, seed trays and other equipment used for raising the young plants should have been cleaned and sterilised earlier in the year. But now is the time for you to be placing orders for seed to be sown for the crop next year, perhaps including some cultivars that have been seen growing in other gardens, perhaps at the R.H.S./N.S.P.S. trials, or which have been noted in exhibits on the show benches during the summer. For the grower raising Sweet Peas from an autumn sowing, there is very little time in the year when there are not plants, at some stage of their development, to be seen. The cycle is virtually continuous!

The fascination of growing Sweet Peas is often mirrored with other hobbies. Photography is an obvious one, but many Sweet Pea enthusiasts also collect memorabilia of their favoured plant in the form of books, magazines, pictures, crockery and porcelain, or jewellery in Sweet Pea motifs. The flower also appears on greetings cards, postcards and the old cigarette packet cards. Examples are also printed or embroidered on linen and other fabrics; the choice is quite extensive for the avid collector. Perhaps silk flowers in the form of Sweet Peas would be allowed on display in the home during the months when none of the true blooms are available from the garden, but these are definitely not show exhibition material!

If you want more on the subject of Sweet Peas then attend the N.S.P. S. Annual General Meeting and regional meetings that are listed in the yearly publications, or link up with the web site to keep up to date at www.sweetpeas.org.uk.

It is hoped that the basic advice offered in this booklet would help and encourage gardeners to grow and enjoy Sweet Peas and the Lathyrus species to their complete satisfaction. Enjoy them!

Further reading

An exhaustive bibliography of the literature relating to all aspects of Sweet Peas was collated by J. R. F. Bishop and printed in the N.S.P.S. Annual, 1995, p59-65. Many of these publications have been long out of print, but sometimes copies can be found in secondhand bookshops, or at the auctions held at the Society's A. G. M. in most years. Back editions of the N.S.P.S. Annual and Bulletins will also provide a rich store of practical and interesting information, together with some more light hearted items reflecting the lives of Sweet Pea growers.

A selection of books that may be of interest and add further detail to the history, development, culture, breeding and exhibition of Sweet Peas given in this booklet are:

Jones, Bernard R.

The Complete Guide to Sweet Peas, 3rd edition 1986. This book on the Sweet Pea is regularly referred to by growers of all levels of expertise. It is well illustrated and the subject matter is given in detail in an easy to read manner. As the book was last revised in 1986, some of the references to chemicals, fertilisers, etc. may be a little out of date, but still worthy of detailed study.

Unwin, Charles W. J.

Sweet Peas – Their History, Development and Culture, 4th edition 1986. Another book giving detailed instructions on all aspects of Sweet Pea care, with a detailed explanation of hybridising techniques. The first edition of this book was printed in 1926, so the results of many years of experience by the author are amalgamated in his final edition.

Hambidge, Colin.

The Unwins Book of Sweet Peas, 1996. A modern and practical guide to the cultivation and care of Sweet Peas throughout the year. The book is very well illustrated and gives an insight into the production of Sweet Pea seed.

Donald, Henry.

A Bunch of Sweet Peas, 1995. This book describes the story of the first Daily Mail competition for a bunch of 12 Sweet Pea stems in 1911. This competition, for a first prize of £1,000.00, drew an entry of approximately 38,000 bunches!

Norton, Sylvia.

Lathyrus, Cousins of the Sweet Pea, 1996. An illustrated guide issued by the NCCPG, describing 46 of the Lathyrus species.

Parsons, Roger.

Sweet Peas An Essential Guide, 1st edition 2011.

The most up to date, beautifully illustrated and comprehensive book covering all you need to know about growing Sweet Peas, other Lathyrus and more.

Rice, Graham.

The Sweet Pea Book 1st edition 2002. This book covers all aspects of Sweet Pea growing and contains some stunning photographs.

Appendix I

Conversion tables to the metric system

Practical equivalents

Measurement

3/4 inch	= 2 centimetres (cm)	16 ins	= 41 cm
1 1/2 ins	= 4 "	18 "	= 46 "
2 "	= 5 "	20 "	= 51 "
3 "	= 7.5 "	2 feet	= 61 "
4 "	= 10 "	1 yard	= 91 "
5 "	= 12.5 "	4 feet	= 122 "
6 "	= 15 "	6 feet	= 183 "
8 "	= 20 "	7 feet	= 213 "
9 "	= 23 "	5 yards	= 457 "
10 "	= 25 "		
12 "	= 30 "		

Weight

2 ozs	= 57 grammes (g)
4 ozs	= 114 g
1lb	= 455g
2.2lb	= 1kg

Volume

1 fluid oz	= 28 millilitres (ml)
3 fluid ozs	= 85 (ml)
36 fluid ozs	= 1 litre
1 gallon	= 4.5 litres

Judges and their Stewards

It may be of interest and assistance to the novice exhibitor to know what the judge is looking for when he or she selects the prize winners from a class of Sweet Pea vases or floral displays. To set out these criteria the N.S.P.S. Rules for Judges, which is current to the time of printing this book in 2008, is given below. Or perhaps experienced gardeners, who judge floral exhibits at horticultural shows throughout the country, may wish to follow the N.S.P.S. guidelines in reaching their decisions in the Sweet Pea classes under their scrutiny.

Even the novice exhibitor may be asked by a Show Manager to assist as a Steward to the judges at a Sweet Pea show, so the advice offered in the N.S.P. S. Guide to Stewards, (2008), reprinted below, could be of assistance at both local and national show levels; although some of the duties would only be experienced at the National Shows.

The Society have issued a short guide comprising rules for judges of Sweet Peas and a stewards' guide which are provided to all members.

Plate 25: commercial Sweet Pea stand at the RHS show, Hampton Court.

Glossary

Acacia Leafed: Cultivars that have extra leaflets instead of tendrils.

Aphids: small sap sucking insects of the greenfly and blackfly types, important as the carriers of viral infections to the Sweet Pea plants.

Axil: the angle between the leaf stem and the haulm, from where the side shoots and flower buds are generated.

Bicolour, (or bicolor)**:** a cultivar that has a standard petal of distinct colouring from the wings.

Cordon: the method of cultivation limiting the plant to a single growing stem.

Cultivar: the modern accepted terminology for variety.

Cupani, Franciscus: a Sicilian monk who sent seed to Dr Uvedale of Enfield, England in 1699, for the first recorded cultivation of Sweet Peas in this country.

Cuthbertson: cultivars developed in America that come into flower rather earlier than the Spencer types and also have more florets to a stem on average.

Duplex: a floret showing a full or partial doubling of the standard petal.

Eckford, Henry: renowned breeder of Sweet Peas in the last two decades of the 19th century.

Fancy: cultivars that have striped, flaked, marbled or bicolour pigmentation.

Fasciated: a mutant deformation of the growing point or a flower stem to give doubling, fanging or other uncharacteristic growth.

Flakes: cultivars that have flowers that are splashed with irregular patterns of colour. The pigmentation is broken up into flakes of colour.

Germination: swelling of the seed to result in emergence of the primary root and shoot.

Grandiflora: the small flowered, unwaved cultivars that preceded the emergence of the Spencer types. These cultivars may also have a hooded standard petal.

Haulm: the main growing stem of the cordon plant. The haulm may also be referred to as the "bine".

Head: the active growing point of the plant.

Hybridising: the artificial crossing of two different cultivars, transferring the pollen from one to the stigma of the second, to create a new combination of the genes for colour and other characteristics in the seed harvest.

Keel: the two lower petals that are fused along their bottom line to form a boat shaped receptacle for the reproductive organs.

Leader: the shoot that is selected to grow on in the cordon system. With strong and vigorous growing cultivars, two leaders may be grown on to obtain a better balance in the flowers.

Marbled: cultivars that are striped or splashed with lines of pigment which is prominent along the veins, but pigment is absent from the underside of the wings and keel and there is no picotee edge.

Nodules: warty like growths on the roots of Sweet Peas and other leguminous plants which contain bacteria that are able to fix atmospheric nitrogen and release this to the plant in the form of nitrates.

Novelty: a named cultivar issued for the first year in commerce.

Picotee: a cream or white cultivar with a coloured edge, often pink, but blue picotees are now being reintroduced after a period of absence from the seed catalogues.

pH: a measure of the acidity or alkalinity of the soil. A figure of 7 is taken to be normal, those levels below are acidic, and conversely figures above 7 are alkaline. The most suitable pH for the cultivation of Sweet Peas is considered to be about 6.5.

Rogue: a plant that does not produce flowers that are true to the cultivar in either colour or form.

Spencer: The modern type of cultivars with frilled or waved petals that originated from the cultivar "Countess Spencer". The "Countess Spencer" was discovered as a "sport" of an older grandiflora type of Sweet Pea "Prima Donna" in the garden of the Earl Spencer by his gardener, Silas Cole, in 1899.

Spike: a botanical term for the full flower stem in bloom.

Spit: a spade depth of soil, about 9 or 10 inches.

Sport: a plant producing flowers distinctly different to the expected cultivar and worthy of further propagation.

Standard: the largest petal (generally single, but sometimes doubled in duplex cultivars) standing at the back of the floret.

Striped: cultivars having blooms that are striped or splashed with lines of colour. The pigmentation is prominent along the veins, but is usually lacking from the front face of the standard and is absent from the underside of the wings and keel. There is a picotee edge to the florets.

Sweet Pea: botanically known as *Lathyrus odoratus*.

Tendril: The twining and clinging threads at the leaf ends.

Tilth: a fine condition of the topsoil, also called crumb structure that is hoped for at planting out time.

Uvedale, Robert: a Middlesex schoolmaster who received the first documented seed of the Sweet Pea from his friend Cupani in Sicily.

Weight: often used to describe the size of blooms or the massiveness of a show vase exhibit.

Wings: the two side petals protruding forward from the standard.

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Plate 26: A decorative arrangement of Sweet Peas.

The National Sweet Pea Society

Log on to our web site for more information on:

How to join the Society

Dates and venues of the major shows

How to get further advice

Sweet pea merchandise

Gallery of popular cultivars

Dates of the AGM and meetings

Information on the trial sites

Publications and bibliography

Who are the Officers

Who is on the Committee

List of local representatives

Links to other sweet pea web sites

Keep in touch with the N.S.PS. at:

www.sweetpeas.org.uk