

Roses and Rose-Growing

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In this column we deal with various aspects of roses, and rose- growing. We are undoubtedly biased – biased in favor of making more people grow roses, and with this object in view, will try to dispel some of the unnecessary mystique which has accumulated around the subject of rose growing, while at the same time adding our bit to increase the mystique and romance of the rose itself.

One of the most alarming features of rose growing, and one which puts off beginners from starting, is the question of spraying roses to keep pests and diseases at bay. All too often a formidable list of possible maladies and an even more formidable list of remedies are presented to the novice, guaranteed to put off all but the hardiest. While it is no doubt true that roses suffer from a variety of fungi and insect problems (not more so, however, than any other long lived perennial plant), it is well to remember that in each rose growing climate only a few of these are likely to be serious. In rose growing, as in anything else, the sage observation of James A. Garfield, 20th US President holds very true: 'I have had many troubles in my life, but the worst of them never came'

The philosophy behind spraying plants against pests and diseases has changed considerably in recent years, in response to increasing awareness of the threat posed to the environment by indiscriminate use of pesticides, As far as roses go, the guideline now is spray regularly with a fungicide, but resort to spraying Insecticides only when the pest appears.

What should be done to put this formula into practice is spelt out below, but please remember that everything depends on careful personal observation in your rose growing climate so that you can adopt remedial measures well in time.

The regular preventive spraying against fungus diseases suggested reduces itself under most Indian climates to protecting roses against the two major fungus

problems of Black Spot and Mildew. As readers may have noticed, black spot is at its worst during wet spells and mildew during dry spells, especially when there is considerable variation between day and night temperatures.

Within this broad guideline, the rose grower can make the task of preventive spraying much simpler if he maintains a record of when black spot and mildew are at their worst in his climate, and adjusts his spray program accordingly. Generally it may not be necessary to spray against mildew unless your observation shows that it is likely to occur. On the other hand, black spot is a much more frequent problem and it may be necessary to spray against this fungus almost throughout the year excepting perhaps in very dry periods.

The prescription that spraying against insect pests should be done only when the insect appears means, as already pointed out, careful observation. As in the case of fungus diseases, many of the pests appear under certain climatic conditions only, and if we take the trouble of noting the cause and effect relationship between climate and pest outbreak, our work becomes much simpler; e.g., the red spider mite is a pest which is at its worst when the climate is very dry-quite often mildew and spider mite come together. The cockchafer beetle problem would be at its worst after the first rain in June, whereas the cockchafer grub which eats the roots of roses, especially pot plants, is at its most destructive in the early autumn – September (observations in Kodaikanal). The red scale is again a pest which has distinct seasons where it is most active; e.g. in Kodaikanal there are two active phases, early summer and late autumn, when spraying is most effective.

Certain simple points have to be kept in mind while spraying pesticides. One is the necessity to ensure that when we spray a mixture of various pesticides, that these are compatible with each other. Many of the insecticide companies supply compatibility charts which could be studied, and the beginner would be well advised to consult experienced rosarians in his neighborhood.

The second point to be kept in mind is the need to mix the pesticides properly in the spray solution. There is some difficulty in handling some of the fungicides/pesticides, which come in 'wetable powder' form, especially in cold weather. While handling such pesticides it is much easier if the wettable powder is mixed into a little warm water, stirred to make a paste and then diluted to the required volume .

A third point is the pH (acid or alkaline reaction) of the spray solution. Most pesticides appear to work best when the spray solution is slightly acid. For e.g., Bavistin or Benlate. A tablespoon of household vinegar added to the spray solution will ensure that the pH is acid. An interesting point on control of black spot, which is generally the most serious fungus problem of roses, is the combination effect of adding urea to the fungicide solution. If urea fertilizer is added (at the same strength

as for foliage feed, say 2 tablespoons for 5 liters) it will be found that Black Spot control using standard fungicides like Dithane or Bavistin is much more effective.

And, lastly, the spray should be directed where it is most required e.g., if we are spraying against red spider mite we must take special care to ensure that the underside of the leaf (where most of the mites are to be found) is effectively covered by the spray. On the other hand, if we are spraying against thrips, it is the growing ends- whether flower buds or leaf stems- which are the main target of attack of the insect and which we should seek to cover with the spray. One more example- black spot is generally found on the mature leaf, whereas mildew is found on the young leaf.

So, to conclude CAREFUL observation and CAREFREE rose growing are closely linked indeed!!

May 1990

As readers may have noticed in this same column last month, while explaining the principles and practice of pesticide spraying, emphasis was laid on preventive spraying of fungicides but not of insecticides, the latter being used only when the pest appears. But, as usually happens, there are exceptions to every rule. It may be necessary to resort to preventive spraying of insecticides in certain exceptional circumstances, e.g., if you grow roses in a very dry climate such as Hyderabad, or in a location which is very dry by nature like on top of a terrace. Under such conditions it may be necessary to spray against the red spider mite even on a preventive basis as this pest is rampant and virtually uncontrollable once it appears when conditions are to its liking, that is, very dry.

Such preventive spraying against spider mite is virtually a must if you are growing miniature roses, which are particularly susceptible to red spider mite. The simplest remedy is to mix the miticide, say Kaltane, with your periodic fungicidal spray- but there are of course other miticides which could be used. In fact, some authorities recommend changing the miticide brand with every spray to avoid build up of resistance

Coming now to the question of fertilizing of roses, two important aspects deserve particular emphasis, especially as these are not highlighted often enough. The first is the question of application of fertilizer so that we have the maximum benefit. Two problems arise:

a. leaching of fertilizer out of the root zone because of watering and/or heavy rain, thus making it unavailable to the plant, and,

b. this second aspect is virtually the reverse applications of fertilizer in the specific zone where the plant can benefit most this applies particularly to fertilizer which tend to remain fixed at the point of application.

As regards the first aspect, generally nitrogenous fertilizers, e.g., urea, ammonium sulphate, calcium ammonium nitrate, which are quite soluble in water, have a tendency, to get out of reach of the rose plant because of dissolving and moving away from the root zone in the process of watering. In the west, this problem has been overcome by the use of what are called slow release fertilizers e.g. Osmocote, where it is claimed that a single application is enough for entire season. In these slow release fertilizers, which are often in granulated form, there is a partially impermeable compound which prevents all the fertilizer dissolving at the same time and so small quantities such as the be usefully utilized by the plant roots are released constantly with very good results, as contrasted with what happens when we apply normal water soluble fertilizer quite often we have an excess of fertilizer in the early days after application with resultant wastage of nutrients and sometimes even burning of the roots and a deficiency of fertilizer later on.

One simple indigenous procedure which has been developed by our scientists is the use of neem oil cake. Which slows down the release of nitrogenous fertilizer, especially of the type of urea. If urea fertilizer is applied mixed with neem oilcake, then the effect of the fertilizer is spread over a longer period with highly beneficial results. Equal quantities of urea and neem oilcake could be mixed and used. Naturally the dose of this urea/neem oilcake mixture will have to be reduced since neem oilcake is also a good source of nitrogen.

As already mentioned the other aspect of the application of fertilizer is the application in the right place. This is particularly important when dealing with phosphatic fertilizers, e.g., superphosphate, which have a tendency to remain fixed in the place applied, and not get dispersed much further. Because of this factor, phosphatic fertilizer, especially of the superphosphatic type is best applied as a band a few inches away from the base of the plant, at a depth where the roots can easily reach.

Many readers would have noticed the spate of advertisements in recent years for plant growth accelerators, e.g. Vipal – there are many others. Most of these are based on an organic compound called triacotanol, which indeed does have a significant capacity to increase the rate of plant growth. As far as roses are concerned one of the important features of a healthy plant is the number of basal shoots which appear – the more the basal shoots the healthier the plant. This, in fact, is the rose plant's way of renewing itself, as, left to nature a rose plant would continuously produce basal shoots, while the old shoots would die. In practice, help this process by pruning, especially by complete removal of very old shoots. For the

same reason, triacotanol has got a tremendous, capacity to induce formation of basal shoots, especially when applied just after pruning. Triacotanol is present in what is called alfalfa meal – another name for alfalfa is lucerna. As some readers may have noticed, alfalfa (lucerna) meal is an important constituent of cattle feed, and many cattle feed manufacturers and others producing related products use it extensively-e.g., the Tamil Nadu Agro industries Corporation produces alfalfa meal at its factory at Udumalpet.

We can apply alfalfa meal in two ways:

1. by applying a handful around each plant just after pruning, and allowing it to decompose naturally by exposure to sun and water, or,
2. by preparing a liquid manure using alfalfa meal.

For the latter, the best procedure is to tie the alfalfa meal, say two handfuls in a piece of cloth and suspend this bag in a bucket of water for a week or so. In this period the water will gradually change color as the alfalfa decomposes and dissolves. Thereafter the solution can be applied to rose plants after diluting it so that it has the color of weak tea. Believe me, this gives wonderful results – results so good that we can overlook the not so pleasant odor of the liquid manure.

One other important aspect of application of fertilizer has already been dealt with in last month's column, namely, the use of urea as a foliar feed along with the preventive spray used to control fungus pests. As already mentioned, urea has the interesting property of improving the efficacy of fungicides while at the same time being a very useful source of nitrogen to the rose plant.

In conclusion, I may emphasize that it is advisable to err on the side of moderation rather than reach for the moon by excessive doses of fertilizer. Like athletes on drugs, rose grown with too much fertilizer have a very short life indeed!

July 1990 The Problem of Rose Rootstocks

The beginner to rose growing is always somewhat puzzled in finding what is the ideal rootstock for his growing conditions-in fact, if we are to go by the constant but rather inconclusive debates which occur at every Rose Convention this problem seems to baffle the experts also.

As readers would have noted, there are basically only two common rootstocks used in India – *Rosa multiflora*, with larger slightly hairy leaves and bright pink semi double flowers, and *Rosa indica*, narrower, longer leaved and with a slightly glossier finish. This also has pink semi double flowers though in a paler shade than *multiflora*.

Both these rootstocks generally flower only on the hills or on the cooler parts of the plains, and that also only if allowed to grow into big bushes.

How to decide on the ideal rootstock for your area?

Without going into too much detail, basically what is the appropriate rootstock is determined by two factors: 1. soil, and 2. climate.

Of the various soil factors, the soil pH (acidity or alkalinity) seems to be more important though other factors e.g. whether the soil is well drained or not, whether it is saline or not, also become relevant especially when there are serious problems arising from water-logging and/or salinity.

Of the two rootstocks, *Rosa multiflora* is happiest on acid, well drained soils of the kind which are common on the west coast of India, in many parts of the Deccan Plateau, e.g. Bangalore, Hyderabad and portions of Pune. On the other hand, *Rosa indica* is happiest when the soil is neutral or alkaline and apparently does better in areas with more loamy soil, for instance, in areas on the Indo-Gangetic plain like Delhi, Lucknow etc.

Coming to the other factor of climate, *Rosa multiflora* does better in areas of comparatively moderate climate, i.e. areas where the summer is not too hot and dry, and winters not too severe – again, the west coast and Deccan Plateau. *Rosa indica* is better suited to endure the hot dry climate of North India in summer. Apparently the fact that unlike *Rosa multiflora* it has a less pronounced tendency to go dormant in severe winter conditions enables plants budded on this to flower more freely, even in the depth of North Indian winters, when there can be occasional very cold spells. These observations are, of course, only a broad approach to the selection of a suitable rootstock, and one has, necessarily, to be guided by local experience.

Apart from rose growing in the ground, rose growing in pots is very popular in India. For such conditions, a third root-stock, Rose Edward (Bourbon) a rose with fragrant pink flowers, as also a non-flowering form of Rose Edward is available. There is a considerable body of opinion that this rootstock is particularly appropriate for pot plants, but we have to keep a strict watch for the red scale pest which seems to be very partial to this stock. Incidentally, Rose Edward is also recommended for certain areas with saline soil, e.g. parts of Rajasthan, as it apparently resists such conditions better.

The two problem areas in India where it is difficult to find an appropriate rootstock are:

1. The North East Monsoon coastal belt centred around Madras city on the east coast, and
2. West Bengal, especially the coastal areas.

In areas around Madras neither *Rosa multiflora* nor *Rosa indica* are particularly satisfactory. In fact, not much work seems to have been done in finding a good rootstock for such areas, where, frankly, rose growing languishes, mainly for this reason. I have come across any number of cases of enthusiastic growers who bring roses budded on *Rosa multiflora* from Bangalore only to find the plants don't survive their first year in Madras.

A possible answer may lie in the use of the hybrid musk rose Prosperity. The well known rosarian of Calicut, in Kerala, Dr. Balakrishnan, found that Prosperity was a good rootstock in his conditions and certainly it grows very well in Madras also. Perhaps some of the rose growers in Madras city should experiment with roses budded on Prosperity as rootstock.

As regards West Bengal, the problem appears to be equally intractable, with water-logging being the factor which causes the most damage. Here again not much work seems to have been done in finding an appropriate rootstock. At one time it was felt that *Rosa clinophylla* (*Rosa involucrata*) which is well adapted to marshy conditions and which is, in fact, a wild rose of the Bengal plains, would provide an answer but, unfortunately, *Rosa clinophylla* is very difficult to strike from cuttings and this factor naturally makes it difficult for nurserymen to use it as a stock. Perhaps one of the seedlings of *Rosa clinophylla* which are being raised in some number in Kodaikanal and other places would provide an answer.

Another approach was suggested by Dr Basye, the well known American rosarian who felt that *Rosa fortuniana*, the hybrid between *Rosa laevigata* and *Rosa banksiae* would be good for such conditions. The *fortuniana* rootstock is used in the coastal areas of Florida, USA and in parts of Australia also. Apparently, it provides uncommon vigor to plants budded on it, but here again we have the problem that cuttings don't strike easily. According to Firminger's Manual of Gardening in India, *Rosa laevigata* used to be common around Calcutta in his time (referred to as *Rosa ternata* in his book). So perhaps *Rosa fortuniana* should be tried by some enterprising Calcutta rosarians.

A word in conclusion, on rootstock for standard roses. In my experience Rose Edward seems to make the best rootstock for such purposes though *Rosa indica* is also quite good. The growth of *Rosa multiflora* is generally too willowy to lend itself to being budded as a standard.

May I also add that miniature roses which have become so popular nowadays are best grown on their own roots where the miniature characteristics are preserved. When budded on to rootstocks the extra vigor of the rootstock very often leads to the production of bushes disproportionately large to the size of the flower.

October 1990 MODERN TRENDS IN ROSES

While the rose may be the world's most favorite flower, it is good to realize that this preeminence cannot remain unchallenged in the highly competitive modern world, where sentiment and romance are fast yielding place to more practical considerations. Rose breeders throughout the world have been seeking to meet the challenges of modern times by evolving various types of roses suited for a variety of uses and locations, we see some contradictory trends e.g., parks and public gardens where labour has become increasingly scarce, require trouble free roses which will cover large areas e.g., more rampant growing and healthier roses requiring less attention. At the same time the private garden is getting smaller and smaller where the classic Hybrid Tea, so dear to Indian rose lovers, is too large a plant and flower, So, smaller roses for private gardens- smaller and more easily manageable – are also required.

Again, one of the features of the modern world is the revolt against set classical standards. At the same time, a hungering for past glories. As far as roses go this trend has led to the modern shrub roses, where the beauty of the old fashioned roses with their fullness and fragrance are being reproduced in more highly colored and free flowering modern versions of the shrub rose.

Even in climbers the trend is towards greater variety ranging from more vigorous roses for the park situation to smaller climbers including miniature climbers to fit into restricted spaces.

Indian rose lovers would do well to remember that we are not really helping the cause of the rose by too rigid a stance where roses continue to mean only Hybrid Teas of perfect form. The Hybrid Tea is the connoisseur's rose but, if rose growing is to increase in popularity we have to attract ordinary folk with interest in flowers who may not be willing to put in the hard work required to grow Hybrid Teas to perfection, but would still like to have a colourful garden of roses. Sadly, even the first step towards attracting a wider circle of growers is yet to be taken in our country, and even the well known Floribunda class is yet to become moderately popular.

Meanwhile, as I said earlier, there has been a tremendous increase in creativity in the world of roses and the purpose of this article is to draw your attention to some of these advances, and by listing out at the same time such of those old favorites which fit neatly into the new types.

One of the most attractive of the new groups is the 'patio rose', i.e. roses smaller than the Floribundas but larger than miniatures, which have become quite popular in various countries. Some of the breeders who have contributed to this class are Meilland, with his Sunblaze series of miniatures (though some of them are, in fact, reissues of older varieties under the Sunblaze label), the Irish breeder, Dickson, with his lovely series of patio roses derived from that most popular Japanese raised single rose, Nozomi, and many others.

Some of the roses which broadly conform to the 'patio' classification are dealt with below.

Among old favourites worthy of your attention are the beautiful pearl pink ECHO, and the very popular white SUMMER SNOW, as also its pale pink sport, AHALYA, all of which bear rosette shaped blooms in incredible profusion. The lovely pair of lilac roses raised by Kasturirangan of Bangalore, NARTAKI with lavender single flowers and contrasting golden stamens, and the rich maroon BHARANI, certainly deserve your consideration especially if you are looking for unusual colours. One other rose in an unusual colour is the smoky brown MOHINI (I.A.R.L.). You could also consider CHINA DOLL, pink, (Armstrong) and TOPSI, orange (Tantau). Modesty does not forbid me from listing two of my own introductions – FIRST OFFERING, red, and BHAGMATI, bicolor. RUGUL (de Ruiter), is another established variety in bright yellow.

Coming to the new introduction we have the Meillandiana and Sun Blaze series from Meilland, the Talk series from Weeks – HAPPY TALK, BABY TALK, FANCY TALK, DOUBLE TALK etc. Two varieties well established in this category are ANNA FORD, orange with yellow centre, from Harkness and REGENSBURG, a hand-painted rose with white and pink colouring from McGredy. Some of the loveliest of the newer introductions have been raised by that well known Irish breeder Dickson, and include PEEKABOO, coral, GENTLE TOUCH, LITTLE WOMAN, and BUTTONS, pink, MINI LIGHTS, single yellow with lovely foliage, and that exceedingly pretty soft coral orange with yellow center, SWEET MAGIC, which deservedly got the accolade of being selected as Rose of the Year by the British Association of Breeders (BARB). One other lovely variety in the apricot orange range is SWEET (Friars), again a selection by BARB.

Among the reds are RED RASCAL from Jackson & Perkins, and DRUMMER BOY from Harkness. In the lilac range is INTERNATIONAL HERRALD TRIBUNE (Harkness) really a new color break almost purple given the right conditions, and LANGFORD LIGHT, white introduced by Bees.

There are also many varieties raised by Cocker of Scotland including SCOTTISH SPECIAL, pale pink, and WEE JOCK, crimson.

November 1990

We have, In the previous issue,, dealt with some of the older varieties, as well as the latest roses which broadly conform to the 'patio' classification. Coming now to roses which grow larger and which would fill the need for different situations in the garden, ranging from areas which require ground cover roses, other places which require shrub roses, and walls and pergolas which require climbers, we have a wealth of talent.

Before taking up specific varieties, may I point out that there are a large number of older varieties eminently suited for the various purposes mentioned above, and, which have, undeservedly, fallen into decline in the craze for what is new. It is worthwhile stressing that when we go in for larger growing roses we are really seeking something much more permanent than the average Hybrid Tea or Floribunda.. Many of the larger growing roses require several years of careful training for achieving best results and it is definitely worthwhile concentrating on traditional varieties to a larger extent than one would when growing standard exhibition varieties of roses.

Coming to what broadly conforms to the ground cover type, one of the most attractive is the well known Polyantha, Chatillon Rose. I can still remember the lovely bushes of pink with white eye in the garden of a Hyderabad connoisseur. I wonder whether any modern ground cover rose which seem to cover the ground more with leaves than flowers can match this exotic profusion.

Much larger growing but equally easy to raise is the Hybrid Musk, Prosperity, which can be trained as a giant shrub or as a climber. This really strong growing rose which bears a profusion of fully double flowers of palest pink has become exceedingly well adapted to the Indian climate. Excellent specimens of this rose can be seen in climates as varied as that of the Indo-Gangetic plain, Hyderabad in the warmer portion of the Deccan Plateau, in Calicut on the West Coast in Kerala, and even in that most difficult of rose growing climates, Madras. So if you have place for only one large growing rose and do not want to take chances, Prosperity is the obvious choice.

A slightly less rampant variety in the same colour range is the closely related Hybrid Musk, Cornelia, with somewhat larger flowers, less double, but with a more pronounced fragrance. If you can locate this treasure by all means grow it if your garden is not large enough to hold Prosperity.

Among the other Hybrid Musks which do very well in India is the erect and very tall growing Vanity, with huge clusters of virtually single dark pink flowers. I still remember the superb specimen we had in our Madras garden well over 7' high, obtained from Bhattacharji of Baidyanath Deogarh.

Many of the Tea roses make admirable shrubs. Two particularly deserve mention-Devonienses with lovely pale pink-white double flowers of camellia form, which grows very well throughout India, and Madame Falcot, with fawn to buff yellow flowers very shapely indeed in the bud stage and very distinctive yellow green foliage. Devonienses, incidentally, is also available in climbing form.

Other Tea roses which are easy to grow include Mrs. B. R. Cant in two shades of pink, and the lovely apricot Lady Hillingdon. The latter bears blooms of the most exquisite shades of apricot, set off by exotic looking young shoots of almost purple-red, but requires careful training for best results.

The Noisette roses which are closely related to the Teas include several climbers which do very well in India. I should mention Maréchal Niel, with egg-shaped nodding blooms of straw yellow, Gloire de Dijon also basically in the same color range, as well as Lamarque, which is perhaps the easiest to grow and which bears a profusion of white flowers with a hint of cream. The latter does excellently in climates as different as Delhi, Bangalore and Kodaikanal. A shapelier version is Céline Forestier, with ivory buds set off by delightful light green foliage.

Turning now to the Hybrid Perpetuals, some of the older varieties in this group make very nice shrubs. Two closely related varieties, at least in color and name are Hugh Dickson and George Dickson, both bearing extra large blooms in the richest shades of crimson scarlet with fragrances to match. As with other Hybrid Perpetuals, pegging down the long shoots rather than pruning helps produce a profusion of flowers. Other Hybrid Perpetuals, which can be grown to shrub proportions include the lovely white Frau Karl Druschki – still the purest of whites, but at its best only in the cooler sections of the country, and that giant among roses, Paul Neyron, with enormous full flowers of rich pink.

Some of the China and Bourbon roses can also be trained as shrubs with attractive results. A China rose which grows well throughout India is the ubiquitous Archduke Charles, with buds of pale pink, darkening in characteristic China fashion to deep red as they age. The Bourbon, Gruss an Teplitz with dark crimson scarlet, medium sized blooms endowed with a fruity fragrance is most easily grown anywhere – whether you are gardening in the Himalayas or even in Madras.

One other China rose or maybe it should be called Polyantha is Cécile Brunner which under Indian conditions makes a large shrub, very disease resistant especially to Black Spot, and bearing a profusion of extremely well shaped pale pink blooms. This again is a rose which can be seen throughout India and is the ideal choice for a beginner.

Having this far dealt with some of the older varieties well established in India, we can now take up some of the more modern roses in various categories mentioned by me earlier.

January 1991 SOME NEWER ROSES

As Dr. B. P. Pal had noted quite some time back (in 'The Rose in India') many of the American roses, especially the All American Rose Selections (AARS) have performed very well in India- - perhaps he was referring to performance in the cool, dry North Indian climate during the rose season. Conversely, quite a few of the outstanding European varieties, especially those of English/Irish origin do better in the cool, moist weather, which is often not available in North India.

In this background, an attempt is made to list, in the present article, some of the exhibition varieties which show promise and have performed well in the US. Apart from the AARS varieties, the Americans, with their knack for presenting information systematically and concisely, have an excellent publication called Horizon Roses. Here the merits and demerits of many recent exhibition roses are discussed, based on the assessment of reporters (rose growers) who are located in different parts of the US. For just \$3.00, this is really good value for money.

So, what are the newer roses which have performed well in the US in recent years and which could be tried out in climates similar to that of Delhi? The following is a list based on the information in Horizon Roses and personal observations during a recent visit to the US.

Starting with recent AARS winners, two of the most interesting are the 1991 AARS H.T. selections, PERFECT MOMENT and SHEER ELEGANCE. I had the good fortune to see a glorious bowl of PERFECT MOMENT in the Rose Show at Norfolk, Virginia organized by the American Rose Society. This rose is indeed unusually attractive with a lovely scarlet gold combination, nice foliage and form. Being bred from Mabella (the Kordes rose which does well in North India) this seems very promising, though it does need cool weather and extra attention to produce flowers large enough for exhibition. As readers may be aware, the salmon pink TOUCH OF CLASS has now become the leading exhibition rose in the US, but judging by results in rose shows, it has not quite maintained that form in India. In the 1991 rose selection mentioned above, SHEER ELEGANCE, which has Pristine in its parentage, appears by all accounts, to be a very good substitute, with very large

perfectly shaped blooms, in alluring shades of pink and orange. Interestingly, this is one of the few amateur raised roses to get an AARS award.

Some of the earlier AARS winners do not appear to be suitable for exhibition. MIKADO, the 1968 orange and gold bicolor, is, apparently, too small for show purposes, though brilliant in color, and the 1987 winner, SHEER BLISS (white) seems not to be in the class of Pristine.

Not yet in India, but obviously a rose to look forward to, is the 1992 AARS winner, BRIGADOON which again is a seedling of Pristine. This bears light orange flowers shading darker on the edges of the petals, which are colored reverse.. It has obviously inherited the lovely dark shining foliage of Pristine. So watch out for its release in India.

There is, of course, plenty of talent available outside the AARS ranks which, frankly, have been somewhat variable in standard, in recent years. So what are the other promising roses?

By all accounts one of the most outstanding new introduction, is a light pink SAVOY HOTEL, which, incidentally, was raised in Britain by the well known Harkness Nurseries. This is a rose really in a class of its own, as it performs equally well in the US – a feat difficult to achieve. A bud of this variety in Regent's Park, London was unbelievable in its perfection. Rarely has there been such a combination of perfect H.T. form and garden value. This is definitely a must for your garden.

Also of interest is the pink with lavender UNFORGETTABLE which is the 1992 Rose of The Year of the well known Jackson & Perkins Nursery. Two others in different shades of pink which have gathered good reports are JEAN DU TILLIEUX and THRILLER.

Among the reds, there does not appear to be much of note – AMERICAN DREAM seems to be not in the top class. Very well shaped with vibrant colour is BOKSBURG FANTASIA, however, the blooms are on the small side. Another red with much larger flowers is ROYAL SUCCESS, which unfortunately opens a bit too flat.

There is a lot of talent among the bicolours-pink blends, red blends and orange blends, and one of the most exciting is CARY GRANT, orange suffused yellow, which, if you're lucky, can produce absolutely breathtaking blooms. I saw some very lovely flowers in the garden of Howard Jones, Norfolk Virginia. But be warned- the performance is not always of this standard. A very colourful new introduction in the same shade is MONICA, more predictable form but smaller. Among the red blends, one to look forward to is ANTICIPATION earlier released RODIN. Another very brightly colored red and yellow is VELDFIRE but with blooms not generally large enough for exhibition. Three pink blends which are good are

AGNES WINCHELL, DOROTHY ANN and DOUBLE PERFECTION, all raised by amateur hybridizer Joe Winchell.

Coming to the whites, roses to try out seem to be DELICATE BEAUTY, and TOUCH OF ELEGANCE, both of which are described as producing blooms of perfect form.

One of my favorite colours, mauve- does not seem to have any winner among the newer introductions – both MOONDROPS and PLUM CRAZY though blessed with lovely color are lacking in elegance of form.

There is much more talent among the yellows, though not in dark yellow A promising new rose in the Dickson raised ELINA, yellow to cross which bears large flowers, full of petals on a vigorous bush. This again has the distinction of performing well both in the US and Britain. But by all accounts, one of the most excellent releases is the Kordes raised ELEGANT BEAUTY (DELICIA) which has the American growers in raves, extolling the perfect form, substance as well as the vigour of the bush. In spite of not having too many petals, the perfect exhibition stage is held for a long time.

As you can see, there is quite a wealth of talent among the new roses, but if you have to limit yourself to just three, clearly the choice should be PERFECT MOMENT, SAVOY HOTEL and ELEGANT BEAUTY.

Copies of Horizon Roses are available with Bill McMahon, College Heights, Box 2237, Bowling Green, Kentucky, USA.

MARCH 1991

As readers are aware, the Indian Rose Federation has been awarded the 1994 World Rose Convention by the World Federation of Rose Societies. And could be expected, there has been a lot of enthusiasm from various rose societies for the honor of hosting the Rose Convention, perhaps also some heat – because, possibly there will be no such second opportunity in the foreseeable future.

A committee of senior rosarians of IRF has been constituted to select the venue, but not much progress has been made so far.

It is no doubt true that in the past international rose conventions have been held only in one city, but on analyzing what is sought to be achieved and considering some of the unique features of our vast country, it is possible to have an entirely different approach. Roses are grown throughout India but varieties, cultural practices, methods etc vary substantially from region to region. Diversity in rose culture apart, India has a rich historical tradition and a unique cultural heritage thousands of years old, as well as enormous diversity in climate and – scenery.

Naturally, the foreign delegates attending the International Rose Convention would like to see as many different places in India, not only relevant for rose growing but relevant from the tourist angle.

In this background it may be quite possible to have a Rose Convention with a difference, which will also ensure that a large number of the rose societies and their members are able to participate in the Convention and meet the foreign rosarians. All that is necessary is to split up the Convention into convenient parts and have each part in a different place. Substantial concessions are available for group tours e.g. by Vayudoot aircraft. In short, if the inauguration of the Convention takes place at city A. thereafter the group can be taken by chartered aircraft to City B, City C, D etc., say some 5 to 6 places spread over the different regions, climates and with different historical and cultural significance in the span of a week, the usual duration of an international convention. In each of these places which will of course be places which has a good rose society which is member of the IRF, there could be a rose show, a reception to meet the foreign delegates and perhaps even a technical session to discuss what is most relevant for the type of rose growing in that area, e.g. cut flowers in Poona, rose growing in one of the northern states where roses grow to such perfection etc.

The advantages of such a new type of rose convention are quite obvious – much greater participation by our rose societies and their members and the inestimable advantage of exposure to foreign rosarians. In a country of vast distances, the average rose grower may not be in a position to actively participate in an International Rose Convention which is held in one place as traveling is expensive and time consuming. But this new approach would enable much greater participation by individuals and rose societies. At the same time the foreign delegates will have a unique opportunity to see rose growing in different places, partake of traditional hospitality as well as see India.

From the point of view of rose societies the financial burden would be considerably less as each host society (or group of societies in that area) will be in charge of only one portion of the Convention. But needless to say if this novel idea is to be effectively implemented detailed advance planning would be required, and the wholehearted cooperation and coordination of all roses societies and members, without competition and rivalry.

May we add that an appropriate theme for the International Rose Convention in India in 1994 could be 'ROSE ETERNAL' - 'a rose convention in the time-less land of India'.

August 1998 ROSES FOR EXPORT – SWADESHI FOR SUCCESS

This article may be considered to be some further thoughts on the article on Rose Exports by Dr. Shekar Basu in the June '98 issue).

With the change of the Government at the Centre, there has been an increased emphasis on Swadeshi in India, but basically Swadeshi should be considered a matter of national pride and not the prerogative of any one political party. A good friend of mine who went to South Korea recently, was amazed at the Swadeshi spirit of the Koreans – he was particularly impressed by the fact that even the richest would buy only Korean made cars rather than foreign models better known in the world.

While talking of Swadeshi, one of the most curious features of the Indian situation is that we talk about it least where it is the most relevant – in agriculture and horticulture!

Coming to the points made in Dr. Sekhar Basu's excellent article we may note that there are basically only 3 issues which are proving to be a stumbling block in profitable export of cut flowers.

1. Productivity per unit area
2. quality of the cut flower
3. cost of installation of floriculture units being substantially higher than what is economically viable.

To this formidable trio of handicaps can be added the problem of payment of royalties for the patented foreign raised varieties of roses and other plants which is **solely what is exported**.

Why do we have the situation described above?

The answers can be considered point wise.

The problem of productivity per unit area and of quality of the product could well have been anticipated. It arises for 2 simple reasons.

- a) the exclusive reliance on foreign raised varieties for export purposes and
- b) the commercial compulsion to maximize flower production in winter when the demand in the importing countries of Europe, USA and Japan is the highest, but when biologically all plants are entering dormancy.

The question of monopoly and the restricted number of varieties which find place in the flower auctions appears formidable. But it is not so, if only an earnest attempt could be made to popularize Indian raised varieties. Even amateur rose breeders have managed to break the monopoly. This is the true story of how the striped cut flower rose 'Zebra', raised by an American amateur became acceptable. The breeder sent a consignment of this most beautiful striped rose to a well known European cut flower grower, who straightaway rejected it saying "A striped rose! How ugly!" Providentially for the raiser, a few stems were kept in a vase on the table of the European grower, who to his surprise, saw that everyone who came to his room- his secretary, other office staff, visitors etc commented on the beauty and uniqueness of the rose. The response convinced the grower enough to make an effort to popularize the variety which is now grown in millions throughout the world.

What was possible for an amateur raiser by sheer coincidence and good fortune is surely possible if only our rose exporters would try to promote roses with an India signature.

You may ask where are such roses?" There are hundreds of rose varieties raised in India with a very large number raised by IARI and the doyen of Indian rose breeders, Dr. B.P. Pal. Many of these roses are crosses with well known cut flower varieties. Surely if an earnest effort is made, our rose exporters can locate at least one variety worthy of promotion, which being selected for India, would definitely be capable of meeting the standards of quality and performance in winter, which are what are required.

Without being unreasonably critical, the serious problem of cost in the floriculture export units, is one entirely created by our slavish dependence on foreign technology. Surely Indian scientists, who have successfully exploded the hydrogen bomb, are capable of designing an export cut flower greenhouse? Why do we require foreign technology for this, which apart from being exorbitantly expensive, can often be completely inappropriate for our climatic conditions? Only one instance need be mentioned. A greenhouse for cut flower production in Coimbatore designed by a foreign expert, had an inside temperature of 100°F in winter!! A word on the buyback arrangement insisted upon by financial institutions as a precondition to financing floricultural projects is appropriate. Buy back is heavily loaded in favor of the foreign buyer. The unfortunate Indian grower is forced to part with his produce at a price considerably lower than the international rates. If the international rates should fall below the agreed price the foreign buyer will cheerfully go back on the agreement leaving the grower stranded. International cut flower business is dominated by love of profit – not of flowers. It is not only the throats of the flowers which are cut.

As regards the problem of royalty to be paid to foreign rose growers. I may say with some justifiable pride that this was anticipated in the Report of the Expert Group on Floriculture (constituted by the Govt. of India, in July 1989) and of which I was a member. I wrote the observations made in the Report, written at my insistence. "The Western cut flower markets accept only certain standard varieties e.g. in roses, Sonia or Mercedes, and as these are patented varieties, exporters will necessarily have to pay royalties to the foreign raisers of these roses. It will be ironical in the extreme if an Indian rose variety suitable for export is denied royalty, while we pay royalty to rose breeders outside the country". (Para 3.10 of the Report)

The basic issue here is that some form of plant patent legislation in an urgent necessity. As a personal disclaimer may I say that at this stage in life I have no commercial ambitions, but plant breeding in India will flourish only if talented and ambitious young scientists come forward to take up intensive work and it will be idle to expect this to happen if financial incentives are not provided.

September 1998 RAISING A NEW ROSE

After having grown roses for some time, keen rose growers invariably feel the urge of raising a new rose of their own. But, quite often the beginner is put off by the pundits who make discouraging statements – example: only one rose in 20,000 can be expected to be worthy of introduction. But such statements overlook the simple fact that rose hybridization is largely a game of chance as many as three worthwhile roses have been produced from the same seed pod. So take heart and do not be deterred from having a try.

Basically, a new rose can only be raised from seed – propagation by cuttings, budding or grafting only result in fresh plants of existing varieties. Many of you would have noticed that certain rose varieties form apple shaped fruits called 'hips', if the fading flowers are not cut off, particularly in winter. Within each such hip can be found a number of seeds very similar to apple seeds.

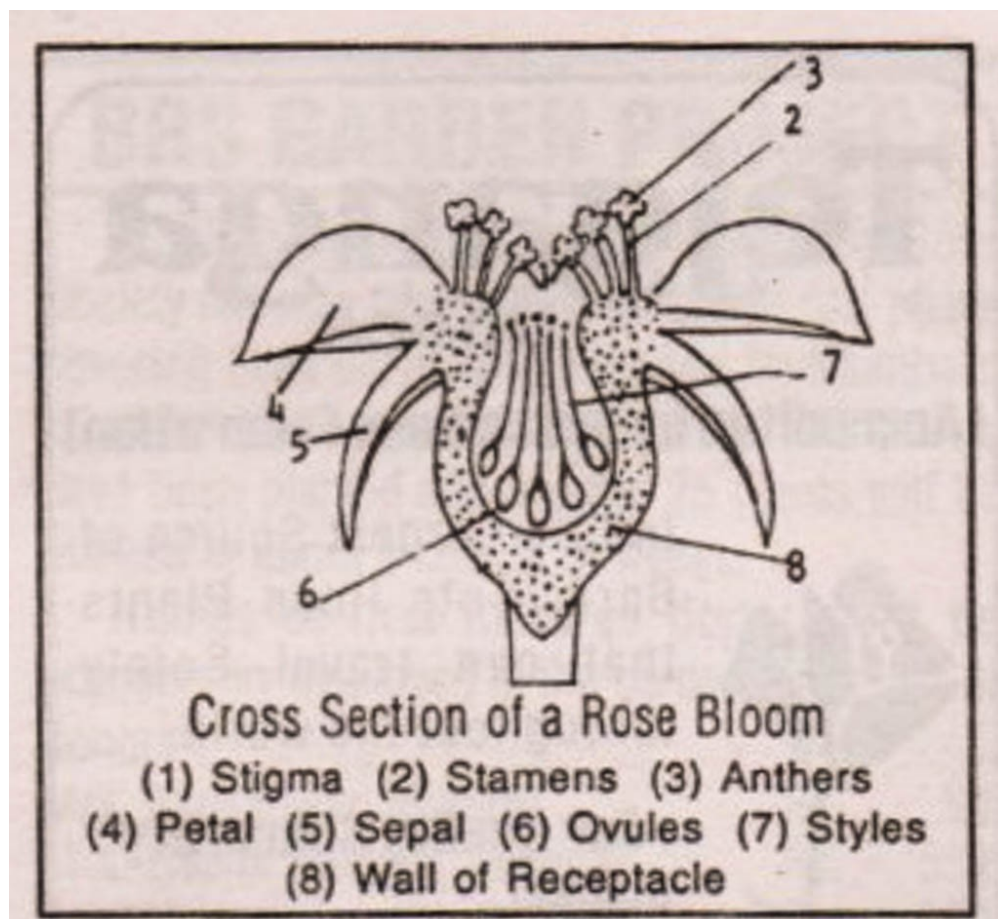
How does one produce the seed of a rose? This is by a process called CROSS-POLLINATION. Before entering into details of cross pollination, it is necessary to have an idea of the structure of a rose flower. The sketch below show a cross section of a typical rose flower.

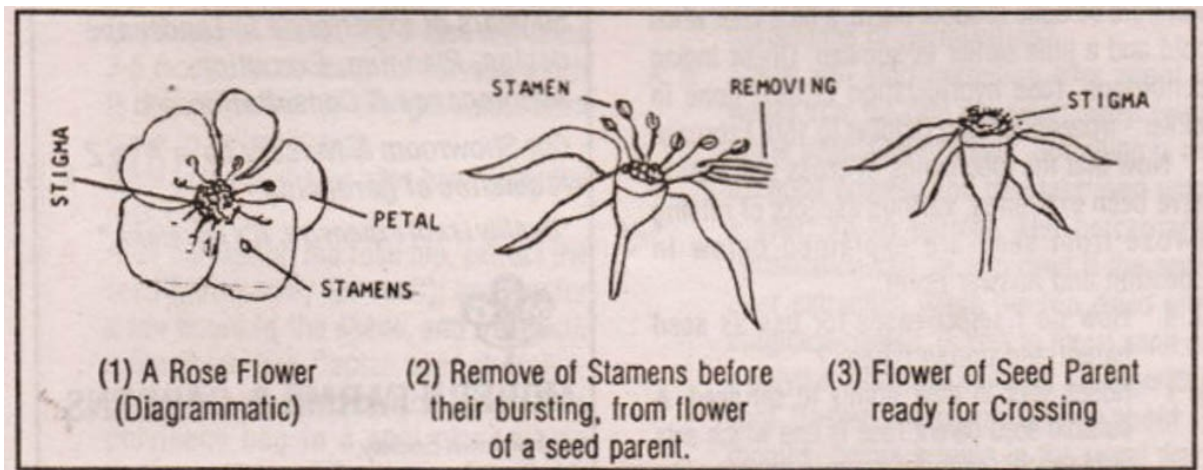
Briefly, seeds are produced when the OVULES mature inside the rose hip or fruit. The ovules, together with the STYLES and STIGMA are called the PISTIL and are the female part of the flower. The ANTHERS containing the POLLEN, held on the STAMEN, are the male part of the flower. The process of cross pollination is

merely the transfer of ripe pollen from the anthers of the male parent to the stigma of the female parent.

Most roses contain both male and female parts. Seed formation can thus take place even without cross pollination, when the pollen from the same flower falls on its stigma as may happen through the agency of bees, butterflies, or even with the flower shaking in the wind. This is called SELF POLLINATION.

So before we attempt cross pollination we have to remove the anthers of the flower leaving only the stigma. This is called EMASCULATION. Select a bloom that is about 2/3 to almost open, gently remove the petals, and you will see the stamens and anthers standing above and surrounding the central part or stigma. With tweezers, or with the fingers, gently pull off the anthers and the flower is ready for pollination. Shown below are the rose flower before and after the above process is completed.





The next step is to transfer the pollen from the selected male parent on to the stigma of the prepared bloom which is called the female parent. In order to do this, you have to first select the rose that is to be, the male parent, remove the anthers (with the pollen) from it at a stage just before the flower opens and keep them aside in a small dish, in a warm dry place – say, a windowsill. The pollen will be ready in a short while – you can test by touching the anthers with your finger, when the pollen dust will stick to the fingertip like a yellow powder. Pollen, when at this stage, can be transferred by a small paintbrush, or, with practice, with the forefinger, to the stigma of the selected female parent, after which the process of cross pollination is complete. A fairly large quantity of pollen should be applied as this ensures good seed set.

Generally, the emasculation of the female parent should be done early in the morning – by about 7 am, as also the collection of the pollen from the male parent. Under normal conditions, the female parent will be most receptive i.e. at the stage best suited for cross pollination (recognizable by the sticky appearance of the stigma), around 8.30 – 9 am, by which time the pollen also would be mature. Cross pollination can therefore be done at about 9a.m in the morning, the precise time varying a little with the weather – a little later when cold and a little earlier in summer. Under Indian conditions, rose hybridization is best done in winter – from about 15th October to 15th February.

Now that the mechanics of cross pollination have been explained, various aspects of raising a rose from seed are explained below in question and Answer form.

Q1. How do I select roses for use as seed parent and pollen parent?

A1. Roses vary in their ability to set seed. A suitable seed parent rose is one which sets, viable seed readily, for e.g. varieties like SAMURAI, PINK PARFAIT, INDEPENDENCE. Any rose can be used as a pollen parent, but the choice would depend on the objective in view. If I am using SAMURAI, a red Hybrid Tea, as the female parent, and aim to produce a red rose, I would choose another red rose as pollen parent – preferably one with the complementary qualities lacking in SAMURAI, such as good form and fragrance.

Q2. What is to be done after cross pollination is effected?

A2. After completing cross pollination, tie an identification tag to the pollinated flower, and enter the details – date, male parent – in a diary or notebook. It is not necessary to cover the pollinated flower with a paper/poly bag as generally advised, this is an unnecessary refinement.

Q3. How do I know whether the cross is successful, and when do I harvest the seeds?

A3. A few days after cross pollination, the rose hip will start to swell slightly if the cross is successful. Generally, a rose hip takes 3-5 months to be ready for harvest, which is done when the hip changes color from green to yellow or orange.

Q4. What is the next step after harvesting the rose hip?

A4. After harvesting the rose hip, extract the seed (throw away the chaff) and dry it for a few hours in the shade, and treat with a fungicide like CAPTAN seed dressing. Thereafter the seed can be stored in a polythene bag in a cool place like a cupboard.

Q5. When and how do I sow the seed?

A5. Rose seed is best sown at the beginning of winter, say the first week of November. Use a well drained seedling compost, sow the seed (preferably in a pot) 1/4" deep, and cover with a little sand. After sowing, keep the soil in the pot moist, but not too wet or too dry. The pot should be kept in a veranda or other sheltered place, protected from rain, and where morning sunlight falls on it for an hour or two.

Q6. How soon will the seeds start sprouting? Are there any methods to improve the percentage of germination?

A6. Seeds will start sprouting after about 6 weeks from the date of sowing, when sown at the beginning of winter. Sprouting is an irregular process and may take even up to a year, so be patient. The percentage germination can be improved if the seed after extraction from the hip is dried and fungicide-treated, and kept in moist sand in a polythene bag and stored in a refrigerator (not freezer compartment) for about 2 months, before sowing in the usual way. This process is called COLD

STRATIFICATION, but it is not essential to do this, particularly for beginner. The same method, i.e. storage in moist sand in a polythene bag can be used to store seed if the rose hip is harvested at the wrong time of the year for sowing, for e.g. in summer. Periodically inspect seed so stored as germination can take place even inside the refrigerator.

Q7. After the seeds sprout what is the next step? When does a rose seedling flower?

A7. Development of the seedling is quite rapid after sprouting. Continue moderate watering, spray with standard fungicide used for roses at half-strength. Shift the pot to where it gets at least 3-4 hours sunshine, but still protected from rain. A rose seedling produces its first flower when the 3rd or 4th real leaf has formed i.e. at a height of about 4-5".

Q8. What are the qualities to look for in a rose seedling? How is a selection made?

A8. The first flower generally given an indication of what to expect on maturity. If the flower has only 5 petals the plant is likely to produce single flowers only, even when fully grown. For a rose to form a double flower on maturity even the first flower should have 12-15 petals. Other qualities to look for are vigor, freedom from disease, good form, novel color fragrance etc.

Q9. How do you evaluate a rose seedling?

A9. After a preliminary selection is made, the rose seedling can be budded on to suitable stock – it is in no way different from budding any standard rose variety, except that a little more dexterity is required as the bud-eyes will be small. Keep the budded plant under observation for sometime and you will know whether you have produced a winner.

This, in brief, is how we raise a new rose. It is surprising how soon one learns to make the right combinations of parent plants so that one's objective is realized. It is always worthwhile to know the parentage of roses used as seed and pollen parents as you may expect a combination of ancestral qualities in the seedlings.

Here's wishing you success in your efforts!