

CUTTING PROPAGATION OF ROSES

RALPH S. MOORE

*Sequoia Nursery
Visalia, California 93277*

“Secrecy — about what you have discovered, never prevents the other fellow from making the same discovery.” Fred Hoyle. (From *Science and Society in Modern Times*) as quoted in *STONEHENGE*, p. 4

This is a basis upon which this Society was founded and it is in that spirit that I wish to share some of my ideas and discoveries in cutting propagation of roses.

For many years I have been interested in the propagation of roses from cuttings. In our nursery we grow thousands of miniature roses from cuttings and I have also proposed that most garden cultivars of roses be commercially grown on their own roots. I have tried to promote the idea to nurserymen, home gardeners, American Rose Society members, etc., whenever and wherever I can get an audience.

The idea is not new but for various reasons the propagation and growing of roses on their own roots has been overlooked, ignored or opposed. In a conversation with Dr. Walter Lamerts, the Dean of American rose hybridizers (‘Charlotte Armstrong’, ‘Queen Elizabeth’ and others) some ten years ago, he said “I agree that the idea is good but how do you convince the commercial growers”?

Going back further, it was not too many years ago that most, if not all, roses were grown from cuttings, divisions, or suckers. In fact, the Howard Rose Company of Hemet, California (discontinued as of 1978) for many years — up until the 1930’s — had as their slogan, “Howard’s Own-Root Desert Climate-Grown Roses”.

When I was a boy many nurseries grew and sold own-root rose plants. In those days plants were usually grown in the open field from hardwood cuttings or were started under glass from softwood leafy cuttings. These rooted softwood cuttings were then:

(1) transplanted to the field to grow on and be sold as one- or two-year-old dormant plants; or

(2) the rooted greenhouse cuttings were shifted into small clay rose pots to be grown on and sold by mail order. Such plants also were used as premiums by magazines and other plant merchants.

Own-root roses have been used for greenhouse cut flower production. In a recent newsletter of the Rose Hybridizers Association, Mr. Charles Dawson of Finchville, Kentucky wrote that

while he was propagation supervisor for the firm of A. Rasmussen & Son, Inc., New Albany, Indiana, they were propagating some 200,000 plants annually from cuttings (1925 and into the 1930's). The year 'Briarcliff' (Pierson, 1926) came on the market, Mr. Rasmussen purchased 10,000 rooted cuttings for stock plants. The following season Mr. Dawson rooted and sold over 250,000 'Briarcliff' plants for cut flower production.

Going back even further, many a gardener grew his or her own plants from the stems of roses in a bouquet. The stem (minus the flower) was inserted into moist soil and a Mason fruit jar set over the cutting or group of cuttings until rooting occurred.

Many of the old roses (now collector's items) such as the moss roses, centifolias, damask, rugosa, hybrid perpetual, etc., could be grown from suckers or by divisions. It is because of the stooling or suckering habit that many of the old roses have survived in such places as abandoned farmsteads, old mining camps, etc.

Somewhere around the turn of this century the practice of budding came on the scene. There were some good reasons that the propagation of roses commercially by budding became popular. Among the reasons:

(1) While many, if not most, of the older roses prior to the 1900's were propagated on their own roots by cuttings, the breeding of roses and the resulting popularity of new strains of roses made recourse to budding necessary.

(2) Because it was customary up to the 1920's to propagate most roses from cuttings (either hard or soft wood) the cultivars then grown were selected partly because they would do well on their own roots.

(3) Several understocks have been used in various times and places, but the once famous garden cultivar, 'Gloire des Rosomans' (Vibert, 1825) found its way into Southern California where it became familiar as a yard and hedge rose. But it was the ease of rooting from hardwood cuttings, the abundant root system and the ease of budding that transformed a common rose into the famous 'Ragged Robin' understock — and with this root the budded rose industry of Southern California was born.

(4) In 1900 the rose 'Soleil d'Or' was created by the great French rose hybridizer, Pernet-Ducher. This cross of a garden rose, 'Antoine Ducher', (H.P.) × *Rosa foetida* 'Persiana' produced the parent strain for our orange, yellow and bi-color roses of today. With it came many problems, including the lack

of easy rooting. So budding was the answer — and has been all these many years.

(5) Later, in the 1930's another garden rose, the vigorous climber, 'Dr. Huey', got into the act almost by accident when someone noticed some plants in a field of 'Ragged Robin', which were somewhat similar but more vigorous. Trials were made with this new improved 'Ragged Robin' (from Shafter, Calif.), which was later identified as 'Dr. Huey'. 'Dr. Huey' quickly became the favorite understock in the growing fields of California and Arizona. For many years some 25 million bushes per year have been budded on 'Dr. Huey' understock.

In other areas of the U.S. and overseas various understocks have found favor. In Texas, the favorite understock is and has been some form of the species, *Rosa multiflora*. Certain selection of *R. multiflora*, propagated from cuttings, have been used in Oregon, New Zealand, Australia, and South Africa. In some areas seed-propagated *R. multiflora* is favored as an understock. For florist roses, 'Manettii' stock is often used.

It is the author's opinion that there are certain advantages to cutting propagation; among them we suggest the following:

1. There is no "sucker" problem, as any shoots originating on the plant will be the cultivar originally obtained (barring a bud sport or mutation).

2. In areas where winter damage may kill the plant top, any new shoots originating from the root area will be the true cultivar, not an understock sucker.

3. There is much less chance that the plant will be infected with virus (provided the cutting is taken from a virus-free mother plant).

4. The propagation of cuttings can be almost a year round operation and thus the need for "instant" labor at a given peak time is avoided. This could help minimize the vulnerability of the industry to union pressure.

5. Production (propagation and growing) could become more decentralized than at present, thus favoring the production of rose nursery stock more in the geographical area of use. This could bring cultivars to the customers which are better adapted and acclimated.

6. Propagation of roses from cuttings would lend itself admirably to the modern practice of container growing.

7. With ever increasing freight cost, more localized or area distribution would have advantages. There is also the possibility of large scale production of liners in light weight media to be shipped to greenhouses and other growers for finishing off in larger (1, 2, or 4 gallon) containers.

To help in this transformation of the rose industry we have at our disposal several methods and techniques not available to the old time own-root rose growers. Some of these are:

1. Rooting hormones
2. Mist propagation
3. Light weight soil mixes
4. Plastic containers
5. Plastic growing houses
6. Chemical fertilizers - liquid, slow-release and others.

To these aides in production I would add certain others:

One of the most important, in my estimation, is intensive breeding efforts — to not only produce good plants with flowers of desirable forms and colors but cultivars which would root easily and in the shortest time.

The often heard objection that a budded plant will mature in the garden quicker than one grown from a cutting may not be entirely valid. In the first place, most gardeners forget that the budded plant is usually two years old (sometimes 3) and they may be comparing it to a one-year cutting-grown plant. But given a good strong, well-rooted cutting-grown plant placed alongside a similar budded plant, the garden satisfaction can be equal, with often some pluses in favor of the own-root cutting-grown plant.

At least the container-grown own-root plant will be delivered in a live, often actively growing condition with 100% of its own roots intact, ready to take off in the customer's garden. I firmly believe that rose breeders, with the materials available today, could change the rose industry within ten years. There are now a number of cultivars which root and grow well. These can be the launching pad for the roses of tomorrow. While I have devoted much of my working life to the breeding and development of miniature roses, I have now added to my rose breeding program the quest for other types of garden roses which can be as easily and successfully grown from cuttings as are my miniatures.

Another area of investigation in the search for methods to make cutting propagation of roses practical appears to be the actual selection and preparation of the cutting material itself. To this end I have followed out some ideas and I have learned a lot.

In January, 1977, the idea occurred to me that some of the canes of our miniature roses were too large in diameter to root easily and that, especially with new cultivars, where propagation materials were in short supply anyway, we might induce

single bud cuttings to make plants. Thus, we used some cuttings not over 1 in. long. I knew that cuttings usually root most quickly if cut right below the node, as rooting does not have to wait for the base of the cutting to callus but may send out roots from undifferentiated tissue at the bud.

The idea is to make what I call a "slice cut," starting $\frac{1}{4}$ in. or more below the bud, slicing as to remove a shield bud, but cutting deeper into the wood and continuing up under the bud (but not removing the bud). The theory was that this cut (wound) would induce rooting around the bud and in the cut area, with the single bud developing into a well balanced plant, much like an original seedling (Figure 1).



Figure 1. *Left.* Cutting out single bud cutting with knife.

Center top. Appearance of two single bud cuttings with leaves attached.

Right. Appearance of two single bud cuttings after rooting.

Cuttings made July 31, 1978. Dug and photographed September 18, 1978. (climbing 'Cecile Brunner')

Based on my suggestion, this type cutting was tried by a New Zealand nursery on 'Mermaid' rose with far greater success than they had experienced previously. To carry the idea further, we have, in the 1978 season, made a number of experiments, duplicating each trial several times, even though with relatively small numbers. These experiments are continuing.

Using the cultivars, climbing 'Cecil Brunner' and 'Golden Glow' (a yellow-flowered climber) we tried various cuts, size of

cuttings, 1 and 2 node cuttings and trials of various rooting media.

The original slice cut worked well and gave rooting considerably better than did conventional cuttings. But there were two surprises with modifications of the slice cut. One was what I call a "slant cut", in which the base of the cutting is cut at an angle to expose an area from $\frac{3}{4}$ to 1 in. in length. This worked even better if the base of the cut ended just below the back of the basal node. The other surprise was in using a single-bud cutting made like a shield bud but longer and with more wood. The shield was cut out approximately $1\frac{1}{4}$ to $1\frac{1}{2}$ in. length. Rooting was phenomenal. All cuttings were made with leaves; the bases, including all cut surfaces, were dipped in Hormex powder. In one lot we included cuttings without leaves; these failed entirely.

In addition to the two cultivars used in the experiment mentioned above we also included two lots of cuttings of 'Little Darling' and 'Queen Elizabeth'. Results were similar.

To further test the idea, cuttings of the miniature rose 'Avandel' (easy to root) and 'Scarlet Gem' (slow and more difficult) were included in the first trials. Only the slice cut was used but there was a marked difference in the rooting of 'Scarlet Gem'.

No bottom heat was used; all samples were rooted outdoors under mist in our regular growing mix ($\frac{1}{3}$ fir bark, $\frac{1}{3}$ peat, $\frac{1}{3}$ perlite) unless noted otherwise.

NOTE: In our operation at Visalia, California, we grow between 600,000 and 700,000 miniature rose plants each year.

CO₂ AS AN AID TO ROOTING

S.E. SORENSON

*Homestead Nurseries Ltd.
Clayburn, B.C., Canada*

We are pleased with the use of CO₂ in our softwood cutting propagation program. For two seasons we have sent CO₂ through our mist lines to assist in rooting. Efficient rooting practices are necessary for us since this is a relatively large part of our business. Leaching and *Botrytis* infection were but a few of the problems that cut down our productivity in spite of our many sanitary practices.

In early 1977, while revising our propagation program, we discovered an article in the 1968 I.P.P.S. Proceedings entitled, "Carbonized Mist in Plant Propagation" by J.M. Molnar and