

THE PROPAGATION OF MINIATURE ROSES FROM SOFTWOOD CUTTINGS

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First, I would like to say that I have had only three years experience in growing miniature roses in quantity. I do not want to give the impression that our methods are the best. I can say, however, that we have been reasonably successful in the way that we grow them at Tipp City, Ohio.

Plant propagation is a fascinating profession. The urge to try new things and develop new methods is strong in good growers. We are fortunate that our industry has so many well-organized research programs in the hands of capable workers. These men have brought about great improvements which have reduced production costs and added large sums to the value of inventories. I would like at this time to express my appreciation for the privilege of hearing the experiences and significant findings of the research and commercial men at this meeting. It is a great opportunity for more economical operation and helps to keep us all abreast of what is new.

Miniature roses like hybrid tea, climbing, or any other class of roses, have certain varieties that are good growers and are easy to propagate, while other varieties are poor growers and more difficult to propagate. Springfield, Ohio, which is 20 miles east of Tipp City, was called the rose capitol of America from about 1900 to 1920. Millions of own root roses were produced each year. I know several men in Springfield who grew own-root roses during the early 1900 own-root-rose-era. When we decided to grow miniatures in quantity, I talked with these men to learn the way they grew roses. Their way of growing works the best for us today. They benched, or planted their stock plants on raised benches, in January. They used good loam soil with about one-third cow manure. The roses were planted no later than early February. The cutting house was kept cold until late March. Two-eye cuttings were made and stuck outside in hot beds.

To make hot beds, they put 10 to 12 inches of wet straw-horse manure in the bottom of the bed, tamped it and covered the manure with five to seven inches of sharp sand. The hot beds were covered with glass ash and shaded with a heavy muslin cloth during the day and the shade pulled back at night. Cuttings normally rooted in ten days, were dug and potted. Most of them were sold the following spring. The varieties they rooted were mostly hybrid tea and climbing varieties. Limited quantities of species and miniature roses were also rooted in the same way.

Our biggest problem with miniature roses is mildew. We have tried all kinds of fungicides with only moderate success. We learned to regulate greenhouse temperatures, which helps as much as spraying to control mildew. In the Spring and Fall, we can grow and root the miniatures successfully. During the late fall, winter and hottest part of the summer we are not able to get good cutting wood.

We now run our roses in a cold greenhouse during November, December, and January. We prefer 40 degrees or less temperature, not caring if the plants are frosted on cold mornings. With eight to twelve weeks of dormancy, the rose plants begin to grow vigorous with heat and the longer sunny days of early spring. The plants are apparently less susceptible to mildew when they grow fast. By spraying them once a week with Captan we control it very well. When we keep the roses in a heated house during the winter there is an abundance of mildew and very little growth.

We have tried benching miniatures in late spring when our greenhouses are not so crowded. Experience has taught if you don't bench plants early and let them run cold for several weeks, most of them die and they do not make many cuttings. Benched plants are best on raised benches in a small, tight house which is shaded heavily during hot weather and the ventilators kept closed. We do not bench many plants because we are so crowded in our greenhouses during the winter months.

Since we do not bench many plants, we have to rob cuttings from the pot plants we have for sale. Most of our miniatures are sold to mail order companies which want delivery March through May, and if we are not careful all of our plants are shipped before we have made sufficient cuttings for our next year's crop. Then it takes a year to build back stock. Miniatures are slow growing so do not make an abundance of propagating wood. We have not been successful in keeping the plants healthy and vigorous during November, December and January and as I said before, most of our plants are shipped in early spring just at the time that we could get the best cuttings.

We do not use hot beds for rooting. In early spring and late fall we stick cuttings in open greenhouse benches, using sand as a rooting media. It takes 3 to 4 weeks for most varieties to root, some longer.

Last summer we rooted our cuttings in an air-conditioned greenhouse under mist with excellent results. The cuttings rooted better and as fast as in hot beds. We used softwood cuttings from greenhouse grown pot plants. The ideal cutting is of vigorous new growth that has a flower bud. Make the cutting just as the bud shows color.

First, we potted everything into two and a quarter inch pot. Now we are up to the two and one half inch size. The biggest trouble is that a plant like this will get crowded and get so much mildew on it that it will be killed. I don't have a great amount of mildew, but if the houses were kept warmer, there would be lots of mildew.

I would like to learn how to make these plants grow during the winter so that cuttings could be made now.

MR. WELLS: Do you take the flower bud out when the cuttings are made?

MR. KYLE: Yes, we remove the flower bud. You can use hardwood, if you desire, but it will take longer to root.

MR. WELLS: Do you use any hormone?

MR. KYLE: We can't see any advantage when hormones are used.

MODERATOR COGGESHALL. Thanks, Tom, for your discussion of the propagation of miniature roses.

The next speaker is Mr. Ray E. Halward, Royal Botanical Gardens, Hamilton, Ontario. He will discuss the propagation of *Cercidiphyllum japonicum* from cuttings.

Mr. Halward presented his paper entitled "The Propagation of *Cercidiphyllum japonicum* from cuttings in cold frames." (Applause).

THE PROPAGATION OF *CERCIDIPHYLLUM JAPONICUM* FROM CUTTINGS IN COLD FRAMES

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Having admired three beautiful upright specimens of *Cercidiphyllum japonicum* for sometime and knowing that they were the only three trees of their kind on our property, I decided to try and propagate them from softwood cuttings.

My first attempt in 1954 encouraged me to try again in 1955. I took the first cuttings on July 12, 1954. The spring and early summer were extremely hot and dry in our section and the new growth was quite firm by this time, which probably accounted for the low percentage of rooting. Of 50 cuttings, only one rooted.

On June 23, 1955 I took 50 more cuttings. They were tip cuttings about 6 inches in length, and cut just below a node and were quite soft when taken, I removed the foliage from the lower half of the cuttings. Having used no treatment the previous year I decided to try them again with no treatment as I had noticed the other cuttings were quite heavily calloused by late summer.

The rooting medium used was one I have used for a number of years with good results: $\frac{1}{3}$ sandy loam, $\frac{1}{3}$ peatmoss and $\frac{1}{3}$ sharp sand with $1\frac{1}{2}$ " of sharp sand on top of the mixture. About two days previous to sticking the cuttings, the medium was moistened and by the time I was ready to stick them the sand on top was quite dry. Thus, as the cuttings were stuck some of the sand dropped around them, giving them a clean, firm medium to begin the rooting process. When they were stuck and moistened, sash was put on and given a coat of white wash for shade.

The cuttings were syringed twice daily when the weather was hot, and sash kept closed for about three weeks. Following this, daily ventilation was given, that is to say the sash were opened a couple of inches to start with and gradually increased until they were entirely removed to give the cuttings a chance to harden before winter.

On September 1st, I checked the cuttings for rooting and found 38 out of 50 were well rooted and the remainder well calloused. The rooted cuttings were wintered in cold frames under glass and were set out in the lath-house in the spring of 1956.

In conclusion, knowing this tree to be dioecious, having male and female flowers on separate trees, I am not sure which sex I propagated as I have never seen the trees in flower. I have been lead to believe,