

MODERATOR MARCH: I am sure you would like me to thank all the speakers who have participated in today's program for their very fine papers.

PRESIDENT VAN HOF: For the assembly I want to thank Mr. March for conducting the meeting. We have stayed right on time. With a program like we have had, I thought we would have to forego our lunch.

The session recessed at 12:00 o'clock.

#### SATURDAY MORNING SESSION

December 9, 1961

The session convened at 9:30 o'clock, President Van Hof presiding.

PRESIDENT VAN HOF: Good morning, gentlemen.

Now, I see that our panel is anxious to get started and so without further ado it is a great pleasure to turn the meeting over to Roger Coggeshall.

MODERATOR COGGESHALL: This morning the meeting has to do with the Propagation Panel, and the first speaker on the panel will speak to us on the Propagation of Clematis - Mr. William E. Cunningham, Cunningham Gardens, Waldron, Indiana.

#### CLEMATIS

William E. Cunningham  
Cunningham Gardens  
Waldron, Indiana

To give you an idea of the procedure we follow in producing clematis, first some comment should be made on the way in which the stock plants are managed. Soon after the first of the year, one-year old plants are brought out of refrigerated storage and potted in 4" and 5" pots in a soil mix which is high in humus content, a mix in which drainage is good and wherein there is adequate texture to permit a free exchange of oxygen. Our potting mix is made up of fertile field soil and peat moss at a 2 to 1 ratio, plus about 10% sand or perlite.

The dormant one-year old stock plants are potted over a period of several weeks to spread out the work load to alleviate the demand for growing space, and ease somewhat the demand for rooting space during the early spring season. We try to time the production of cuttings so that only about 20% of the total production occupies heated space in the early spring, with the greater proportion of the clematis production scheduled for the early and mid-summer propagation period.

The stock plants awaken from dormancy very rapidly, and they produce cuttings just a few weeks after potting - usually in 5 to 6 weeks.

At least three flushes of cuttings are available during the season, each flush taken just as the blocks begin to flower. The stock plants are grown in cool, plastic house areas, poly covered and temperature controlled during the winter months, but open and saran-shaded in summer. The plastic house environment seems very satisfactory for growing this crop, certainly better than in greenhouses where temperatures are too warm for stock, though ideal for rooting.

The first cuttings are stuck in the rooting houses in February, March and April and, as rooted, are grown on in 2-1/2" clay pots. These are known as our 1st flush lots.

The second flush of cuttings, are the lots which are stuck in May, June, July and in early August. These cuttings go into 2-1/4" round peat pots, and are grown in flats. The summer production of clematis cuttings is the main production period, and it is timed to fit in our schedule of a year-round propagation program. Plants developed from cuttings rooted during the long days of summer ultimately develop into plants just as nice as the earlier 1st flush lots.

The third flush of cuttings, the last of the season, are those taken in late August and in September, cuttings of varieties in which shortages still exist at this date and for which greater numbers apparently will be needed the next season for stock production. The rooted cuttings of this 3rd flush are potted in small clay pots and carried in plastic house storage through the winter months, then shifted the following spring to larger containers and grown on for another season.

To repeat, the propagation of clematis entails an average of three flushes of cuttings, the first potted in 2-1/2" clay; the second, and main crop, in 2-1/4" peat pots and grown in flats; the third - and usually the last flush, into small clay pots.

All propagation is own-root, that of leaf-stem cuttings - lightly pruned, hormone treated, using No. 1 Hormodin, and rooted under clock-controlled intermittent fog-mist. The rooting media is comprised of concrete sand and peat, on a half and half basis, and of course steam sterilized. No appreciable time is lost between taking cuttings and placing under highly humid greenhouse conditions. All rooting is on raised benches with 5 weeks the approximate time required to root.

A particularly critical period in managing this crop comes in the transition of the rooted cuttings from the humid greenhouse propagation space to the cooler, drier atmosphere in which plants must be grown - though under the gentle protection of 46% saran. Handling must be such to make sure the plants do not dry-out, to desiccate, in this change. It is at this period the initiating buds at the leaf axil can be lost, and if so, plants ultimately die, though some root action may take place.

The ability of a clematis cutting to root, to root rapidly and well, we believe is directly connected with the plant food stored in

the cutting - and this fact is apparent in the rooting of clematis. We know this is a factor, too, in rooting chrysanthemums. We prefer soft cuttings, not cuttings that have become hard through lack of nutrition, so one key to success with clematis is that of making sure good levels of nutrition are kept. In addition, though complete research information is still unavailable, we're now realizing clematis is subject to day-length response, and if we are to succeed best - then supplementary light requirements should be met during the short days of the production season. It is certain that long days, preferably interrupted night lighting, definitely accentuates vegetative growth.

As to our feeding program, we let the appearance of the crop guide us in determining the rate of fertilizer application and the interval between feedings. This crop, both the stock and the new, young progeny, to point out again, is grown in the open during the summer months, though under saran, so if heavy rains have occurred, or if it has been excessively hot and therefore necessary to irrigate heavily, then the interval between feedings is adjusted accordingly. The crop appearance and the weather is our guide, plus an occasional soil test to double-check. On the average, soluble plant food is applied weekly, usually preceding the spray operation. The 3-1-1 soluble nutrient is applied at the rate of 1 pound per 100 gallons to the stock plants as well as to the new crop.

We use the "pinch" method in managing the young clematis and in using this "pinch method", we try to keep a semblance of balance between the vegetative top growth and the root system. We do not want the new growth to extend beyond a point for which there is root development sufficient to sustain it. To accomplish this "pinch method" in preference to the conventional staking and tying system, we begin to pinch out young, soft tips just as soon as they develop on the young potted plants. This pinching is very similar to the pinch on chrysanthemums to induce more branching, and subsequently more wood upon which more flowers are produced. On clematis, wherever possible, we pinch out this terminal growth when it is soft and before any vine extension occurs, but if through delay we fail to do it at the preferred time, we don't hesitate to prune long vines which have grown beyond the soft-pinch stage.

Cane stakes are not used, therefore, either in the management of the stock plants nor in growing the new crop, and this may seem unorthodox to you but we feel the cooler environment nearer ground level is more conducive to better growing than if the vines are trained upward and exposed to conditions which dry out and lead to maturity. The cutting wood taken from vines growing in horizontal position is softer, more succulent, and is definitely preferred during the hot summer months. In letting clematis vines sprawl, instead of using the customary staking and tying system, we don't under any circumstances let vines pile up too heavily, lest there is trouble. There must be some air circulation, otherwise there's foliage breakdown and a possible loss among the young, fragile plants.

In the late fall when the foliage begins to take on hues indicative of maturity, as dormant eyes become evident, - say in November when short days and soil temperatures have changed to a point inducing dormancy, the packaging operation begins. Plants become dormant and store very nicely on the ground beds in the plastic houses - though refrigerated storage is a definite asset, a facility we could not do without in the management of the clematis crop. Foil and poly are used in wrapping plants individually, and small wire-bound crates are used as storage and shipping containers. Clematis retains dormancy beautifully at 32° - 33° F and stays perfectly dormant until needed for orders or for propagation stock - whichever the case may be. On occasion, we have potted stock from refrigeration as late as August 1st with marvelous success.

In conclusion, our general recommendations are as follows:

1. Use a soil mix - well drained, well aerated and fertile.
2. Feed lightly and often; keep a high nutrient level.
3. Spray thoroughly and religiously; maintain a good sanitation and spray program.
4. Take soft cuttings and keep turgid while rooting.
5. Grow plants in sunny but cool location, on sterilized ground beds.

MODERATOR COGGESHALL: We have time for several questions.

MR. CASE HOOGENDOORN: What do you spray with, Captan?

MR. CUNNINGHAM: This can be rather involved, but we spray with a mixture of half Captan and half Parzate, with an occasional spray of Bordeaux mix. We have to rely on the coppers occasionally, maybe once a month, and of course, the insecticides run the gamut, depending on what we think we need. A thorough job of spraying is necessary. It should be regular. We feel once a week or after each heavy rain.

MR. KLAUS VAN HOF (Newport, R. I. ): What is the pH level?

MR. CUNNINGHAM: We try to keep the pH level in the middle range. We don't have too much trouble doing it because our sand is calcareous and water is from a limestone source, so we don't have to add lime to our potting soil. I think the middle range would be the ideal.

MR. LOWENFELS: I may have missed this. I came in a little late. Where do you take the cutting - at the nodes?

MR. CUNNINGHAM: You perhaps recall the illustration of the cutting that was rooted. We sever the cutting about two inches below the node and about half of that is stuck in the sand.

MR. CASE HOOGENDOORN: What happens if you don't cut them below the node?

MR. CUNNINGHAM: We cut about two inches below the node. You might be interested in this system that Henry Tusher, of Montreal

Botanical Gardens, spoke of recently in the American Nurseryman of the leaf bud system. That might have real merit. We expect to try it. In the case, the bud would be stuck under the sand and would be more or less protected during the rooting period, and I think that could be real important. We use the leaf stem system, a two inch stem with a four inch.

MODERATOR COGGESHALL: Richard Fillmore?

MR. RICHARD FILLMORE: I would like to ask about varietal differences with respect to ease of rooting. Mr. Cunningham, could you name an easy one and a very difficult one, and one which he would regard as intermediate with respect to ease of rooting?

MR. CUNNINGHAM: This might not be true with a competitor. He might have ones that root easily and they would be difficult for us. For us, Montana rubens, Madam Baron Veillard, Elsa Spath and Romona are easy ones. Of course this usually happens - the difficult ones are those that sell the best. Jackmanii is one we have the most trouble with. (Laughter)

MODERATOR COGGESHALL: I am sorry, that is all the time we have for questions now. Thank you very much.

Our next speaker on the program will speak to us on the propagation of Chaenomeles, and he is certainly no stranger to us. Mr. Wells, of Red Bank, New Jersey.

#### CHAENOMELES

James S. Wells  
Red Bank, New Jersey

The propagation of Chaenomeles does not apparently present any unsurmountable problems and the tests which I am about to describe will simply illustrate some of the finer points which can raise propagation results from a mediocre to an excellent level. The tests were carried out during 1954 while I was with the D. Hill Nursery Company in Dundee, Illinois, and they therefore apply to plants and conditions as they exist in the Midwest. The tests were made on numbered varieties of Chaenomeles raised by Dr. Colby at the University of Illinois, Urbana. These plants had been growing for many years in a stock block on the Hill Nursery and were well established. They normally grew quite vigorously and produced ample supplies of good shoots from which cuttings could be taken.

#### Equipment

As usual, we were trying to test a number of things at the same time - a mistake, I believe, because one can become so confused in the multiplicity of tests that it is difficult to sort things out - but basically, we were rooting these cuttings in an open-air mist bed.