

exciting genus clematis is and underlining how fortunate I am in being able to collect new species from the wild, grow them, display them, and make a business out of them in future years.

BRUCE BRIGGS. Would you comment on your spray program?

RAY EVISON: When our cuttings are taken they are immediately dipped in a Captan solution. When we are finished at the end of a cutting period we drench with Captan. We then move in with Benlate every 2 weeks as a light drench. We had a botrytis problem this year and had to come in with another compound for that. Basically it is a Benlate program though. When potting on we use a Captan drench to start. Then we use a Benlate drench (1 lbs/100 imperial gallons) at the rate of 25 gallons to 9000 sq ft. Benlate works well for wilt control.

CAMERON SMITH. How do you collect your wild plant material?

RAY EVISON: It is stored in damp moss in poly bags.

GRAFTING UPRIGHT JUNIPERS

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Grafting upright junipers is an ancient process in the field of plant propagation. Many articles and papers have been published in various past IPPS Proceedings dealing with this particular subject.

We do not specialize in upright junipers, however, we do grow *Juniperus chinensis* 'Robust Green', and *J. chinensis* 'Keteleeri' to diversify our line of ball and burlap material. We have grown 'Keteleeri' for many years and like it for the simple reason that it has a full, compact growth habit right to the ground, as well as deep green foliage. 'Robust Green' has been a welcome addition over the last few years because of its dense and dark green color which compliments its irregular form. Both cultivars seem to adapt to our changeable and sometimes harsh weather conditions in New England.

As did many nurserymen years ago, we used *J. virginiana* as an understock for grafting. It made an excellent understock, however, the ever present phomopsis blight problem made

propagators search for a more dependable understock. We chose *J. chinensis* 'Hetzii' as it rooted quite readily and made an excellent understock for grafting. We take our cuttings from plants which have been planted in nursery beds for two years and planted in field rows for another two years. We choose the heaviest cuttings as they make the best understock. They are rooted in the greenhouse in the winter months and planted out the following spring in beds with very close spacing so that the root system is built up. The plants stay in beds until approximately the middle of November (after a killing frost) and are brought in, trimmed and potted in 2¼ in. pots. The understocks are then placed in a greenhouse with bottom heat (approximately 68°F) to stimulate understock rerooting prior to grafting. We feel this is essential for good results.

The peat should be shredded and put into the greenhouse bench quite awhile before the actual grafting takes place in order that it may be turned over and uniformly dampened to insure good results. The peat can be put in a windrow and sealed with water until time of use. We usually start grafting these upright junipers the first week in January as they are rerooted sufficiently.

The scions are usually cut 3 to 4 days ahead of actual use. We try to cut this material during milder weather for various reasons: the employees do not want to be cutting this material under impossible conditions; and the scion (when extremely cold) has too vast a physical change to undertake. When extremely cold weather persists and material has to be cut, we usually submerge them in cold water for fifteen minutes to draw out the frost. Scion material is kept moist and stored in a cooler at approximately 35°F until needed. Scions are usually taken from production plants in the field. We try to select the heaviest scions possible in order to insure a strong plant right from the start.

Scions are usually made to a length of approximately 12 in. with the bottom 3-3½ in. trimmed flush with the stem in order to allow the grafter a sufficient surface to make his cuts. The scions are dipped in a Benlate solution (1 tbls/gal H₂O) and allowed to dry in order to cut down on persistent fungus problems associated with grafting under a high humidity environment.

The understock is watered one day prior to grafting to insure proper moisture levels. However, all external surfaces should be dry at the time of grafting.

The conventional side veneer graft is used in all our grafting operations. An extremely sharp knife is required for this process. The understock is trimmed back slightly at the time

of grafting We make approximately a 1½ in. long cut in the understock on the straightest side and as close to the pot as possible The scion is cut slightly more than 1½ in on one side and slightly less on the parallel side in order that a fresh angle cut can be made on the scion Understocks and scions of approximately the same caliper should be used in order to match up the cambium layers on two sides However, this is not always possible, but it is essential to line up cambium layers on one side to insure good results The scion is inserted into the understock with the lip covering the outside cut. A budding strip (¼ × 4 in) is used with medium tension It is applied from the top of the union down leaving enough space for callus tissue to form The bottom lip should be left completely open as this is where the majority of callus formation occurs. We use a half hitch in the final turn of the budding strip in order to simplify its removal at the time of planting

When a flat of grafts has been completed it is immediately taken to the greenhouse and the potted grafts are set on the bed The peat is leveled off and a trench is made so that the unions are buried. The grafts are placed on approximately 60° angle to insure that they fit under the glass sash We keep the bench temperature at 68° to 70°F Depending on size and fullness of the scions we may want to open the rows a little to help eliminate fungus problems Once the grafts have been set in the bench they are syringed on sunny or bright days and the sashes are put down A linen cloth is rolled over the sashes to protect the grafts from direct sunlight On dark days the grafts are aired with no syringing and the sashes put down in place without the linen

Approximately four weeks after the grafts have been placed in the sweat box or grafting case, the callus should be fully developed It is now time to set them on top of the peat and begin hardening them off. As soon as they are brought up they are watered as the pots may be getting dry and also to keep some moisture around the callus tissue. The sashes are gradually left open a longer period each day to allow more air circulation. After four days we put a 2 in block under the sash After approximately 6 days they are kept completely open with syringing 3 to 4 times a day depending on the weather. After the seventh day they are moved to a holding house in order to make room for a new crop

The understock is cut back slightly and the grafts are set pot to pot on a ground bench in the holding house. We do have heating pipes anchored to the cement walls approximately twelve inches off the floor and keep the temperature at 60°F. They are now watered to provide sufficient moisture in their new environment The grafts are syringed on sunny days

depending upon light intensity. As soon as the weather warms up in the latter part of February or the beginning of March, ventilators are opened and the grafts are aired. This is also a gradual process with ventilators being raised only slightly on the leeward side at first. It may also be necessary to apply shade to the glass at this time as the sun's rays become more intense. The pots should be checked for proper moisture content periodically.

As the days lengthen and the outside temperatures increase, it is necessary to gradually increase ventilation procedures until such a time that they are left completely open. I might add that the doors are also left open at this time to increase air circulation. During this period syringing is gradually reduced.

The grafts remain in the holding house until the early part of June. At this time the understock is completely removed as well as the budding strip. If the budding strip is not removed before planting, it will not deteriorate and serious girdling will result. Grafts are now planted in nursery beds 7 in. apart with approximately 8-10 in. between the rows. The grafts are planted with the top of the union approximately 1 in. below the soil surface in order to protect against breakage. The newly planted grafts remain for two years in this location. After the second year they are transplanted into field rows. They are planted in 3 ft. rows with 2 ft. spacing between the plants in the row. After three growing seasons the plants are harvested for our ball and burlap trade.

LEONARD SAVELLA: We take our *Juniperus* 'Hetzii' right out of the rooting bench and put them in a pot with good results.

DIXON HOOGENDOORN: We do not have time until November. You could do it that way.

Editor's Note. Calvin Chong at this time gave a short presentation titled "Simultaneous Grafting and Rooting of Upright Junipers."

CALVIN CHONG. During the past several years I have been investigating the simultaneous grafting and rooting procedure for speeding production of upright junipers. A literature search indicated that this technique, although not widely practiced, has been used by several members, such as Dillon in California and Teuscher in Montreal. The technique also has been described in the textbook by Hartmann and Kester. I obtained encouraging results in grafting and rooting scions of upright 'Skyrocket' and 'Pathfinder' juniper to easily-rooted 'Hetzii' juniper rootstock using the "paired-cutting" technique for Douglas fir previously reported by Brix and Barker in

British Columbia. Matched cuttings of scion and rootstock species were grafted along the basal 3-4 cm and held together with a rubber band.

Results varied between 20 and 100% successful paired grafts depending on who made the grafts, but the approach did seem to have potential for practical application. More recently I developed the styrograft technique in which detached cuttings of the upright species were conventionally side-grafted to the detached rootstock cutting. These grafts were held together by inserting each set of grafted cuttings into styrofoam blocks (3 × 3 × 5 cm), prepunched in the center with a nail to facilitate entry of the rootstock. The base of the rootstock was allowed to protrude 0.5 cm out of the styroblock to facilitate growth regulator application. The styroblocks exert sufficient pressure to keep scion and rootstock together and benefited the graft union, which seemed to heal better. Insertion into the styroblocks is less time consuming than tying with rubber bands. Since roots penetrate quite freely through the styroblock, it is unnecessary to remove the block, a feature that would facilitate transplanting.

In view of the very large cuttings that can be used, I estimate that simultaneous grafting and rooting could save as much as 1½ to 2 years in production time, and may deserve a closer examination by propagators. A more detailed account of this procedure was published in *HortScience* 16(4): 561-562, 1981

Tuesday Evening, December 8, 1981

The thirty-first annual banquet was held in the Grand Hall of the Holiday Inn, International Drive, Orlando, Florida.

On behalf of the Society, two graduate student awards were presented to Ms. Ann Fagan and her advisor, Dr. Michael Dirr, University of Georgia, Athens Georgia; and Bryce Lane and his advisor, Dr. Steven Still, Ohio State University, Columbus, Ohio.

The award for the best undergraduate paper was presented to Mr. Scott E. Hyndman, Department of Horticulture, Purdue University, West Lafayette, Indiana, and Dr. Paul Hasegawa, his advisor.

Two individuals received the Award of Merit at the annual banquet.

AWARD OF MERIT

Ray Halward presented the first award

Our first Award of Merit recipient is a member who you

all know and no doubt most have talked to through the years. He has been an active member since 1953 and has never missed an annual meeting

He graduated from the University of Missouri with a B.S. in Horticulture. His work experience includes three nurseries in Missouri from 1946-65, one nursery in Nebraska from 1965-70; two nurseries in Ohio from 1970-80; and presently is working in a nursery in western Michigan. He has specialized in developing new techniques of seedage and other nursery production methods.

He has served in every capacity with the Eastern Region including President in 1967-68 and International President in 1971 and presently serves as the Historian. The Eastern Region is not the only one to benefit from our members dedication. The Southern, Western, and Great Britain and Ireland Regions have had the privilege of his participation. One can also gauge the intent of his giving by browsing through the Proceedings.

The person we honor tonight is Ralph Shugert.

Leonard Savella presented the second award.

It gives me great pleasure to announce to you that this year we have another recipient, truly deserving of the Award of Merit. The second recipient of our Society's highest reward is John Peter Vermeulen.

Pete Vermeulen was born on May 27, 1919 in Carle Place, Long Island, to John and Johanna Vermeulen. Peter's father, John, emigrated from Boskoop, Holland in 1915 as a fourth generation nurseryman in a nursery-orientated town and country. Pete is a fifth generation nurseryman and presently has 3 children, Jeffrey, Nancy and Wendy who represent the sixth generation in the family-owned nursery of John Vermeulen and Son, Inc.

Peter attended elementary school in Carle Place, high school in Westbury; business school in Jamaica, New York; a short course in floriculture at Cornell; and apprenticed as a student propagator under Martin Van Hof at Rhode Island Nurseries in Middletown, Rhode Island for 2 years

In 1941 he entered the army as a volunteer recruit and in 1946 he was honorably discharged with the rank of captain. On separation Pete joined the U.S. army reserve and retired in 1976 with the rank of lieutenant colonel. During World War II while on Adak Island in the Aleutian Islands of Alaska, Pete met his wife Edith Newman whom he married in 1946. Peter and his wife Edith have 5 children and 2 grandchildren.

Upon leaving the army, he joined his father's nursery

business on Long Island and together they relocated and expanded to their present location in Neshanic Station in North Central New Jersey. Peter joined the Eastern Region of the IPPS in 1955. immediately became very active in the Society and was most anxious to share his knowledge with fellow members. Pete has presented several papers at Society meetings and actively participates in all our annual meetings with his questions and answers. He has been both Eastern Region and International President in our Society

Peter has been active in his state nurseryman's association since 1947 and has served as its President. He has served on the Board of Managers at the College of Agriculture and Environmental Science for 9 years and also served as President. He is a member of the State Board of Agriculture for New Jersey and served as its Vice-President in 1980-81. In addition he has served as Director of the New Jersey Farm Bureau for several years, and also has been active in the local school board, Industrial Commission, County Board of Agriculture, Farmland Preservation Committee and his church as a teacher, leader, disciple and witness.

Peter is presently managing the family-owned business primarily engaged in plant propagation and container culture of the more rare and unusual plant genera, species, and cultivars used in plant beautification and environmental enhancement. His business is also heavily engaged in creation, sales and distribution of bonsai plants

It is indeed an honor and a privilege to present to such a distinguished man our Society's highest award: the Award of Merit.

Thursday Morning, December 10, 1981

The Thursday morning session convened at 8:10 a.m. with William E. Snyder serving as moderator.

PROPAGATION OF SHADE TREES BY SOFTWOOD CUTTINGS

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The specific objectives of this investigation (a study initiated in 1979) include (1) how many different tree species can