

ROOTING OF MAGNOLIA GRANDIFLORA

WILLIAM J. CURTIS

Wil-Chris Acres
Sherwood, Oregon

It is a great privilege to be here to present my method of propagating *Magnolia grandiflora* from cuttings. *Magnolia grandiflora* from cuttings is not at all difficult, at least I have not found it so. In Western Oregon *Grandiflora* will grow late — in fact on November 11 when I began to outline this paper several *Magnolia grandiflora* Pioneer were in bloom and one-year old plants were ready to break into flower.

We have just now stuck our cuttings for this year — I feel cuttings should not be taken until the terminal bud is well developed. The loss of the terminal bud will give a crooked tree to line out. The lower branches taken from two or three year old field grown trees are best. This growth is pencil size or less, and will run from three to twelve inches in length. Cuttings 18" long or longer will root but take up too much bench room. This side shoot has a well developed terminal bud. We sever it from the three year old field grown tree with a sharp knife, leaving a piece of last year's wood on the cutting — we are taking a heel-cutting.

These cuttings are taken to the propagation house, washed thoroughly, for being close to the soil line, they can be covered with mud. A thin slice of wood is removed from this heel, just enough to trim the cutting to ease its entrance into the firmly packed sand. Remove several of the leaves and make a heavy scar or slice on one or both sides of the cutting. This scar is about one inch in length. A standard 4" deep flat filled with firmly packed sharp sand is used for the rooting medium. The cuttings are dipped in Hormodin #3 and stuck 30 to 40 to the flat, depending in the size of the cutting. A bottom temperature of 75 to 80 degrees has given the best results. Water heavy daily. The cuttings will be ready to pot or can when the terminal bud shows a little activity. I take the cuttings from the flats myself, trying not to break a single root. If necessary, I will tear the flat to pieces to keep from damaging the roots.

We use a pot or a container of a size into which the roots should go for the best growing conditions. The majority will go into 1-gallon containers, a few in 2-gallon containers. The smaller ones into 4" standard pots, which will be filled with roots before the summer is over, then shifted into 1-gallon containers. These liners stay in the greenhouse until November, at which time they are over-wintered in a plastic house that is not heated unless we have several days of 20 degree weather.

Our soil warms up more slowly than yours does here in the East. By May first they are lined out in the nursery, two-foot spacing in the row 84" apart. We plant a low growing or upright growing plant between the rows of magnolias — a crop we can dig in two years, for the finished crop of magnolias take

three years, tho we dig 25% $\frac{3}{4}$ at the end of the second year. The third year will give us a heavy $\frac{4}{5}$ and $\frac{5}{6}$ crop from which we take our cuttings.

DICK STADTHERR: What is the condition of the wood when you stick these, or do you stick them each part of the year?

BILL CURTIS: We generally put in the cuttings of *Magnolia grandiflora* along the first part of November and the wood is good and firm and the terminal bud is well developed. I think that is the secret. Now, I have talked to them in California about putting in *Magnolia grandiflora* from cuttings and they say they don't have good success because they get a flower bud, and then they get a dog leg plant. From my observation in working with these, if you take that shoot down lower to the ground in most cases there is no flower bud. The flower buds will generally form near the top. If you have some crooked ones, let them grow into shrubs because a lot of people prefer *Magnolia grandiflora* as a great big bush, so we still don't lose them.

STEVE O'ROURKE: I would like to ask you a question pertaining to the rooting temperature of the cuttings. The 85° F. temperature is high. I would like to know if there is any correlation between the high rooting temperature for the cutting and that for grafting. If Jim Wells or anyone else in the room has grafted *Magnolia grandiflora*, I would be very glad to have their name.

JIM WELLS: We gave up grafting magnolias years ago, Steve. Any magnolias that I have grown in the last fifteen years have been rooted from cuttings. That includes all the magnolias. But I haven't grown *Magnolia grandiflora*. But in rooting the magnolias we have maintained a bottom temperature of 75° F. for the ordinary ones. And certainly what Bill says is borne out by the temperatures the fellows use in Semmes, Alabama. I understand they shut their house up and it gets over 100° F.

DICK STADTHERR: What percentage of rooting are you getting? You haven't told us anything about that.

BILL CURTIS: Well, on the smaller sized cuttings, that is 4 - 8", many a time we have 100%. And, of course, maybe we stick a hundred and ten in the flat. That always helps. I had planned on this ahead of time, so I took the pictures ahead of time and I lost my percentages, I did some counting and on the smaller cuttings, we would get 100% time after time. These are all in four inch deep flats. But on the larger ones, if you put them in too thick, you will be making a mistake. Don't get those large ones in too thick — don't crowd them too much. Because you won't have very good percentages on those large cuttings if you crowd them. You may have to get down to 25 cuttings per flat with those large cuttings. But that's the secret I think in getting the percentages, not having them too thick and then you must have heavy bottom heat, real stiff bottom heat. We didn't have too good luck when we used normal bottom heat

such as 65 - 70° F., like we do with many others. Even on the *Magnolia soulangeana* types we used real stiff bottom heat 75-80° and 85° F. and if you watch your water you won't have any trouble. But when you have that high a temperature you just about have to flood them every day.

DON SHADOW: Were these cuttings under constant mist or intermittent mist?

BILL CURTIS: We put these in old fashioned way. We just took a hose and syringed. By November we're not using any mist in Western Oregon. The Lord provides for us outside, it's plenty moist.

DON SHADOW: Are the *Magnolia soulangeana* cuttings taken in the fall or are those taken in the summer?

BILL CURTIS: The *M. soulangeana* type cuttings and *M. stellata* are taken in the month of July. We try to take those cuttings from plants which are lined out the spring before. By putting in cuttings in July we take them out and plant them early in spring or in August. These cuttings at that time in late July may have grown 5 or 6", and we take them and allow 3 leaves from the bottom. You can break the top off in your fingers — the soft tip. And if possible, we take a heal, but it doesn't seem to make too much difference. When I first started, we used heals because from the old stock plant of the *M. souangeana* or *M. soulangeana rustic rubra* or *M. stellata* you would not get very much growth or at least we wouldn't get very much growth. But from a new vigorous growing plant you get a shoot 7 - 8" long in late July.

JIM WELLS: Bill, I notice that you wounded these cuttings. Have you tried any without wounding?

BILL CURTIS: When a thing works I don't change it.

JIM WELLS: Then I see you've found a value from wounding.

BILL CURTIS: I think a long time ago I read an article, by somebody, I don't remember who it was, 20 years ago or so, somebody wrote an article in *American Nurseryman* about wounding Rhododendrons. And where I was working that time we tried it; it worked, and whenever I find that something works I stick with it.

VOICE: What medium do you use in your containers.

BILL CURTIS: We use about $\frac{1}{3}$ of soil and $\frac{2}{3}$ fir bark.

VOICE: Do you fertilize?

BILL CURTIS: Oh, yes. But I couldn't tell you exactly how much fertilizer we use. But I know one thing we put in what they call saldusto that will kill a lot of our insects that feed on the roots. I know that's one item that we do use. Unfortunately I do not recall exactly what we do use.

VOICE: Do you use a liquid fertilizer or dry?

BILL CURTIS: Well, we use a dry fertilizer, I know we use some bone meal. We generally allow a four inch pot of fertilizer to a wheelbarrow of the soil and, of course, we use a full bail of peat. But this material we use for the *Magnolias* is just the fir

bark and the soil and we figure about a 4" pot of fertilizer to the wheelbarrow load of material. That's a pretty safe mixture to use and, of course, we vary it and use some bone meal and we use some other organic materials. The plants in the greenhouse are fed once a month with 25-10-10 soluble fertilizer through an applicator.

HANS HESS: Our next topic for this morning is weed control using compressed air, a new concept. Mr. Asper Laursen was originally scheduled to give this paper but since he is unable to be here, it will be read by Mr. Ernest Otto Timm.

WEED CONTROL USING COMPRESSED AIR, A NEW CONCEPT

ASPER K. LAURSEN
Bowmanville, Ontario, Canada

An entirely new concept in physical weed control was developed and tested in Europe 12 years ago, and is now used successfully in hundreds of nurseries in Denmark, Germany, Holland and other countries.

The machine, a so-called weedblower, is basically a turbine-unit mounted on a cultivator and powered from the tractor's P.T.O.

Through an universal shaft and a transmission the turbines are brought up to between 15 - 20,000 R.P.M.

The strong jet of air, thereby created, is channeled through flexhoses down to a steel nozzle on a cultivator base, at an 90° angle to the plants in the nursery-rows.

Proper cultivation in the nursery rows will create a small ridge of soil along the base of the plants.

The weed blower works on the principle, that, when very young, the weed seedlings' root system is much shorter, and weaker, than that of the established nursery plants.

So when the weed seedlings appear on the soil ridge in the nursery rows the jet of air will remove the weed seedlings, together with the small soil ridge, entirely without disturbing the nursery plants, which have a much deeper root system.

Immediately behind the air outlets are cultivator teeth which build up a new ridge of clean soil around the plants.

In Canada I have worked with this machine for six years, and found it very useful. In large nurseries with long rows, it is possible to clean a block of nursery stock, between the plants *in* the rows, at the rate of 800 plants per minute, using a weed blower that takes two rows at the time.

In hardwood cuttings planted in the fall, and hilled up to prevent winter heaving we used the machine to uncover the cuttings in the spring, as well as to control the weeds amongst them.

At Brookdale-Kingsway Nurseries in Bowmanville where I am now employed, we bud a considerable amount of understock, fruit trees, shade trees, roses, etc.

This summer we tried the weed blower to clean the soil