


Heather Notes

July, 2001

Volume 11, Number 3

Clones and Mutants

by Judy Wiksten



What's all this fuss about cloning? Ever since the advent of Dolly the sheep, there has been much debate about the ethics of animal and, inevitably, human cloning. I'll leave that debate alone, but it strikes me as ironic that we heather gardeners have been knee-deep in clones for decades. And we have been overjoyed with mutants, which we carefully nurture, test and send to others around the world.

This isn't mad-scientist stuff. Strictly speaking, every single plant you put in your heather garden is a clone, and if you have ever stuck a tiny branch into a pot of soil and convinced it to grow roots, you have made a clone. When we're talking about cloning, we are really talking about the most common, and the easiest method of propagating heathers.

I thought it would be interesting to bring together some of the proper definitions, along with advice from successful "cloners" who wrote about the subject in past issues of newsletters.

According to my favorite heather book, *The Heather Garden* by Harry van de Laar, a cultivated variety or cultivar (cv. for short) is a distinct group of plants which, through the intervention of a human, has been brought into cultivation and owes its name and existence to humans. In order to maintain its characteristics, such as flower color, foliage color or growth, a heather cultivar must be propagated vegetatively, and so it is a

clone. Clones will not normally come true from seed; that is, if you save the seeds from a particular cultivar and start seedlings, there is no guarantee the plants you grow will be same as the original. A seedling, any seedling, is "the joker in the pack," and it is never a clone.

By the term clone, we mean a vegetatively propagated group of plants originating from a single individual. Thus, for example, all the specimens of *Calluna vulgaris* 'County Wicklow' now in cultivation came from a single plant that was selected for its distinct characteristics in Ireland years ago. All the vegetatively propagated progeny—the clones—of this plant will be exactly alike, all over the world, even in the far-distant future, provided that no mutation arises.

Strictly speaking, every single plant you put in your heather garden is a clone.

Now mutants are a whole different matter. A mutation, also known as a sport, is a genetic change that has occurred suddenly. It may appear in just one portion of a plant, and shows itself as a different flower color, shape or foliage growth. It is a natural phenomenon, but nowadays may also be induced, for example, by radiation.

When an abnormal shoot is propagated by cuttings, its characteristics are preserved and a new cultivar is started. Many heathers have been obtained this way and put on the market. The cultivar we know as *Calluna vulgaris* 'Kinlochruel', for

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ISSN 1086-8925

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How Rooting Happens

Calluna vulgaris gives us perhaps the easiest clues in establishing how and when rooting occurs. A time-lapse movie would show that one or two weeks after the cuttings have been inserted, the leaf nodules just below soil level begin to swell. Days later a split starts below the nodule. The split increases in length as the nodule continues to swell.

The swelling induces more splits around the nodule and in particular causes a small split directly above the nodule from which the root emerges.

This is contrary to most plants which root around the edge of the wound (caused by the separation from the mother plant.) One layer of tissue which a root must rupture is known as

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Clones & Mutants

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example, was discovered by a sharp-eyed Scotsman in the village of Kinlochruel as a sport on one of his cultivars of *Calluna vulgaris* 'County Wicklow.' The mutation showed its pure white double flowers on a plant that was supposed to have pink flowers. This gardener took cuttings of the unusual growth—he cloned it—and the rest is history.

Today you can drive out to Rock Spray or any other nursery and buy an exact genetic replica of either plant, complete with its colorful and far-flung history.

This gardener took cuttings of the unusual growth—he cloned it—and the rest is history.

Wouldn't it be fun to keep a sharp eye out for mutants in your garden, and try a little cloning yourself this summer? Articles that follow will show you how. •

Cuttings from The Heather Society Website

The most common method of producing heathers is from cuttings. Many gardeners have trouble rooting heathers from cuttings but if a number of simple rules are followed, a high success rate can be achieved.

What happens when a cutting roots? Why do some species root easier than others? Why do cuttings root easier at certain times of the year? These questions and many others like them arise irrespective of what form of propagation is used.

Rooting depends upon many inter-related factors, some beyond our control, but other aspects are helpful in determining the type of material we should select. In general, cuttings should be taken from healthy, vigorous plants, preferably not more than three years old, but other aspects are more species-dependent.

Calluna vulgaris cuttings can be taken during July and August from the growth just below the flowering stem. Select stems that are firm and just turning straw brown. Discard stems where the leaf nodes are more than an eighth of an inch apart, as these will be more difficult to root and make a less shapely plant.

Cut the stem with a sharp knife immediately below the flowers and then cut again to create a cutting about two inches long. Remove the leaves from the lower half of the cutting by rubbing your finger and thumb down the stem.

The potting medium into which rooting can take place can be prepared from three parts sphagnum peat moss and one part horticultural perlite. An acid, gritty sand can be used instead of perlite. An acid medium will improve rooting yield. There is no need to add fertilizer at this stage; in fact, the yield is likely to be higher if none is added.

Erica carnea cuttings are best taken in July or August by selecting stems that do not have buds forming on them. Ideally, heel cuttings about two inches long are best, but if in short supply a tip cutting can be prepared but cut off the top two inches of growth with a sharp knife. Avoid stems where the leaf nodes are more than an eighth of an inch apart. The lower half of the leaves should be removed.

In the case of the heel cutting, nip out the growing tip. As *Erica carnea* flowers profusely, it may be difficult to find cutting material without buds, in which case these will have to be used. Prepare as above, but remove all flower buds by rubbing a finger and thumb upwards along the stem.

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Once a cutting has been severed from the parent plant, it will continue to lose moisture via the leaves until such time as it produces roots. The two basic ways of rooting heather cuttings attempt to keep this transpiration loss to a minimum. The first, open to all amateur growers and described below, relies on keeping the cuttings humid. The second is more sophisticated: mist propagation.

Closed polythene method

There are many adaptations of this method, depending on whether small or large quantities of rooted cuttings are being produced.

The main danger with this approach is the risk of fungal attack. If small numbers are required, the following method minimizes that risk.

- 1 Place some sand into a 4-inch clay pot.
- 2 Place a small amount of growing medium at the base of a 6-inch plastic pot.
- 3 Place the clay pot inside the plastic pot and lightly firm more growing medium in the ring between the two pots.
- 4 Make holes with a nail about ½ inch apart, close to both edges.
- 5 Place the cuttings in the prepared holes but do not firm them in.
- 6 Once the pot has been filled with cuttings, water heavily so that the potting medium seals the holes.
- 7 Leave for 20 minutes and seal the plastic pot in a clear polythene bag (one with no holes in it,) ensuring that the polythene is kept clear of the cuttings.
- 8 Place the pot against a north wall or in light shade under a bush or a place where the sun cannot shine on the polythene bag. **Never place the pot in a greenhouse,** as the temperature variation is too great, nor in a propagator unless you are prepared to spray the cuttings five or six times a day.
- 9 Leave for several months, checking occasionally that the polythene bag is fogged. If not, heavily water the sand in the center pot, and re-seal. Any

cuttings that die should be removed to minimize disease.

- 10 To check that rooting is taking place, lightly pull the cutting. If resistance is felt, you can be sure that rooting is taking place. Those not rooting will come out easily and can be replaced just as easily.

Weaning

Care has to be taken to wean the cuttings from the humid atmosphere once rooted. On dull days, the polythene cover should be lifted slightly for an hour to start with, gradually increasing the period until the cover can be completely removed.

Growing On

The rooted cuttings can either be potted on, or planted out in a nursery bed. Transplanting is best done in early spring, but if cuttings are sufficiently well rooted by September, they can be potted on and overwintered in a coldframe.

Knock the cuttings out of the seed tray as one would a plant from a pot. Divide the cuttings from each other with an old knife.

Place relatively dry growing

... if cuttings are sufficiently well rooted by September, they can be potted on and overwintered in a cold frame.

medium into a 4-inch pot (smaller sizes are more prone to drying out) and lightly firm. Make a hole in the center of the pot and plant the rooted cuttings deeply, burying any bare stems so that the lower foliage rests on the soil surface.

Make sure that the cuttings have been firmed in well. Water heavily and place the pots outside in a well drained not-too-exposed area. Water regularly through the spring and summer. For most cultivars, rooted cuttings transplanted in spring should be ready for final planting by autumn. ●

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the *sclerenchyma* and probably the root has to wait for this layer to be split by the swelling nodule before rooting can occur. In time, many roots appear from the splits.

Easy splitting and multiple rooting could account for why most propagators find *Calluna* easy. There is a marked tendency for the splitting to occur first towards the base of the cutting. On occasions it is possible to observe all stages occurring simultaneously on one cutting.

Thus if propagation is under good control, the longest roots will appear close to the base of the cutting (but not around the edge of the wound, where the cutting was separated from the mother plant.) Others, less long, can be observed as you approach the surface of the soil.

When propagation is not under control, often weak rooting will appear near or at the surface of the soil. The normal cause is that the soil is too wet, but cuttings from old wood will also show this effect.



Heather Notes is published quarterly by the Northeast Heather Society

Annual dues are \$10, payable to the treasurer

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President's Perspective

by Judy Doyle

Got my miracle tonic in the mail today. It's *fermented salmon*. Whew!

Listen to how it has been described in various publications: "improving plant germination, root growth, greening, budding; increase foliage, flower and fruit yield, and stress recovery after transplanting." "Growers rave...controls powdery mildew, black spot, aphids, white flies, slugs...controls browsing deer and rabbits!"

Other adjectives: incredible, amazing, singularly helpful, major development, impact product. "A rich brew of immediately available micro-nutrients, amino acids, vitamins, fatty acids and other organic compounds. A natural disease suppressant."

The one caveat is that it stinks to high heaven—naturally—and might repel humans. But, the makers claim that the "distinctive" odor "dissipates quickly if used correctly." (Maybe the visiting relatives could be persuaded to find a motel instead?)

It's said to be an improvement over fish emulsion in that it won't wash off foliage for six weeks, thus staying effective in deterring pests.

I first heard these testimonials while listening to a gardening show on Connecticut's Public Radio; it must have a good reputation because CPR offered it as a pledge reward during its latest fund-raising drive.

I HAD TO HAVE IT!

Even though my heathers are looking damed good, they'll get a dose of this magic elixir along with all the perennials and herbs. I'll let you know what happens. We are among the lucky few without a deer problem, but moles do plague us. Maybe other NEHS members will try it and let us know the results in a future issue.

Fermented Salmon is made by 'Coast of Maine,' 145 Newbury St., Portland, Maine, 04101. Phone (800) 345-9315. website: www.coastofmaine.com

I am not connected with the company in any way other than as a consumer. •

The Plant Doctor

by Dick Munson

Dear Doctor,

This past year I noticed about mid-summer that one of my *Calluna vulgaris* 'E.F. Brown' developed a few branches that were brown. I thought this was strange since E.F. Brown does not generally have a brownish tint at any time of year. I watched it, and the number of brown branches increased. I cut off all the brown branches to see if the problem was temporary or was still there. More brown branches appeared.

I didn't think it could be a watering problem since the plant was well established and we had enough rain last summer that I needed to water it only a few times. Then I thought it might be the dreaded "replant disease" that I've read about in various newsletters. Upon closer investigation, I discovered some tiny grayish-white critters (about 1/8 inch long) living at

the center of the plant at ground level, i.e. they descended into the ground at the junction of the main branch and the roots.

Can you please tell me what to do about this? I don't want whatever these are to spread to my other heathers. And I would like to get rid of them with the least possible damage to soil, birds and helpful bugs.

I'd be grateful for your suggestions to solve this problem. Many thanks,
Nancy Passavant, Massachusetts

The Plant Doctor, founding NEHS president and a real Ph.D., speaks:

Since it has been a long time since I've tried to diagnose a heather problem, I felt I had to consult someone with more current

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Nominations are Open

Nominating Committee chairperson Joyce Descloux announces that we have to fill the position of Recording Secretary and several board seats at the annual meeting in September.

If you are interested and can attend four meetings a year, then you are qualified. Please contact Joyce—32 Longridge Rd., Randolph, NJ 07869. Telephone (973) 539-3349 or email ajdx@worldnet.att.net—to volunteer your services, because NEHS needs your services in a year of transition.

The NEHS leadership wants to expand the board of directors as soon as we can, with a view to getting members on the board who could become officers or newsletter editor next year.

Current editor Judy Wiksten is going to retire in 2002. The newsletter is the thread that holds our 200-plus members together, so the job is an important one to all of us.

Won't you consider taking an active role? If you will, Joyce would be delighted to hear from you. ●

Welcome, New Members:

Anita Alic of Westport, CT
Shelly Andrews of Vinalhaven, ME
Jane Wasyl of Newington, CT
Roy Goldstein of Arlington, MA

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experience. So I called my good friend Dr. Ron Kujawski of Great Barrington, MA. Ron is the nursery specialist for the University of Massachusetts Cooperative Extension Service and is often called upon to diagnose problems that face nursery growers in Massachusetts.

He spoke directly to Nancy and she described the situation as shown in her original question. We then talked about the various possibilities and came up with the following suggestions.

We both doubted that the original browning was due to an insect attack, and thought that the insects were likely secondary organisms that colonized the dead and dying tissue.

We believed the more likely scenario to be either a case of powdery mildew (it doesn't always show up as a whitish coating on the foliage) or a

case of *Armillaria* root rot. Both can cause whole branches to turn brown and die. However, until we have definitive proof that one factor or another is involved, we have asked Nancy to watch the plants very closely this year and at the first sign of browning and/or the appearance of the insects to get a sample to Ron.

If you think this is a somewhat unsatisfying solution (no solution is proposed here) then you know what it's like to work with plants. Often it is more of a process of elimination than the definitive identification of a causal agent. As you also know, plant problems are often the result of the synergy of several factors, such as watering, nutrition, insects and pathogens. As soon as we know something that seems really to make sense, we'll let you know. ●

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All submissions to Heather Notes will be accepted for publication, and may be edited for clarity and length. Please include your name and phone number so that you can be contacted in the event that more than minor editorial changes are necessary.

Deadlines for each issue

January.....Dec. 20
April.....March 20
July.....June 20
October.....Sept. 20

Easy Rooting Candidates

Some heathers seem to root more easily than others. Effie Keays of British Columbia, Canada, found success with these cultivars. When she took cuttings in July, most had rooted by August and September. She put her little plants into holding beds for the following spring.

Calluna vulgaris

'Barnett Anley'

'Elsie Purnell'

'Mair's Variety'

'Multicolor'

'Robert Chapman'

'Serlei Aurea'

'Silver Rose'

Erica carnea

'Springwood Pink'

'Springwood White'

Erica x darleyensis

'Arthur Johnson'

'Dadey Dale'

'Silberschmelze'

Erica x watsonii

'Dawn'

Erica cinerea

'Ceyennes'

The Temptation of Cuttings

by Effie Keays

These authors describe a slightly different method of home heather propagation, from the British method on page 2.

Propagation of heathers, some heathers, is not to be undertaken lightly; it can be so temptingly easy!

One small 4" pot with a mix of half-peat/half-perlite, well moistened but not soggy wet, covered with a perforated plastic bag—and just imagine. In less than two months there

The small holes in the plastic bag provided enough ventilation to prevent mold and mildew from forming.

were 25 beautifully rooted cuttings ready to start lives of their own.

In several ways I was unwittingly fortunate. I started in early July on *Calluna vulgaris* 'Mair's Variety.' I have found since that it is one of the easiest to root.

The small holes in the plastic bag provided enough ventilation to prevent mold and mildew from forming. Every two or three days I took off the bag and sprayed the cuttings with a fine mister.

The hairlike roots began to form in about four weeks, and by mid-September (8 weeks) there was a ball of roots ½" to ¾" all around. I transplanted the rooted cuttings into 2½-inch pots containing a mix of half sandy loam, half compost and peat. The pots were kept in an unheated greenhouse until spring when the plants, now with tiny spreading branches, went into the garden holding bed.

I haven't found all my efforts as astoundingly rewarding as those first ones. Among callunas, 'Sister Anne' was reluctant, 'Dainty Bess' uncooperative, 'Mrs. Pat' and 'Silver Queen' total failures. I believe I did read somewhere that the silver-foliaged plants are more difficult to start.

However, 'Silver Rose' was more obliging. Certain heaths and heathers, I found, have proved relatively cooperative with my simple technique, and they are listed in the margin column at the left.

Windowsill Propagation

by Homer Ferguson

I would like to say that the following idea was completely my own, but the truth is I saw the method explained in a leading horticultural magazine.

Start with a two-liter plastic soda bottle that has a reinforcing cup attached to the bottom. Mark the bottle at the point where the top of the cup meets the bottle. Next, place the bottom of the bottle in very hot water until the glue holding the two pieces softens and you can separate the two parts. Now cut the plastic bottle bottom off, at least ½" below the line you have marked. The bottom cup will have some holes, but more will be needed in the very center.

Fill the cup with rooting medium, and place your cuttings after dipping them in Rootone. Water well, and place the bottle top so it pushes down inside the cup.

Put in a cool place with lots of light (never, ever in direct sun) and leave it alone for 60 to 90 days. Never water as there is enough moisture in the mix to keep it wet.

Two more things: 1. be sure to replace the screw top on the bottle, and 2. have the rooting medium good and moist before using. I have found that some heathers root very well in 60 days but others take up to 90 days. ●

NEHS Annual Conference

September 14-16, 2001 Providence, RI

This year NEHS is hosting the North American Heather Society for a joint meeting. Here's the agenda.

Friday:

2:00 p.m. Registration at the Johnson & Wales Inn.

3:00 p.m. Board meeting

6:00 p.m. Cash bar in our meeting room

6:30 p.m. Buffet dinner, with after-dinner speaker Ella May Wulff

Saturday:

7:30 a.m. Breakfast, with speaker(s) to be announced

9:00 a.m. Motor coach tour departs from the Inn

9:30 a.m. tour stop to be announced

10:00 a.m. Arrive at Green Animals for tour of world-famous topiary garden

11:00 a.m. Blithewold Gardens tour

(Other garden visits as part of our bus trip are still being arranged.)

5:00 p.m. Return to Johnson & Wales

6:30 p.m. Cash bar followed by dinner at the Old Grist Mill Tavern. Short business meeting with election of officers.

All are urged to plan on visiting downtown Providence after the evening festivities, to view the wonderful "Waterfire" event.

Sunday:

Continental breakfast available in front lobby. Plant sale follows.

Maps and directions will be made available to various "tour-on-your-own" gardens and nurseries in the area.

The Johnson & Wales Inn at 213 Taunton Ave., Seekonk, MA is offering us a discounted room rate of \$89.00 per night. For reservations, call (508) 336-8700 or (800) 232-1722 by August 15. Callers *must* identify affiliation with Northeast Heather Society in order for special rate to apply; rates cannot be changed at check-in or check-out for guests who fail to identify their affiliation with NEHS. Reservations after Aug. 15 will be received on a space-available and rate-available basis. The preferred rates can be extended to other nights, at the time of reservation, if you mention NEHS.

Conference Registration

Name(s): _____

Address: _____

Email: _____ Phone/Fax: _____

Check attendance plans: Weekend _____ Saturday only _____

The registration fee includes the Saturday bus tour, the guided tours of Green Animals and Blithewold, and lunch at Blithewold. All fees are per person.

\$ _____ Registration fee \$40

\$ _____ Friday dinner \$30

\$ _____ Saturday breakfast \$15

\$ _____ Saturday dinner \$21

\$ _____ information packet \$1

Lunch at Blithewold is included in the tour.

Please circle selection from these gourmet box

lunch choices: **Roast Beef**, **Turkey Breast**

(sandwiches plus) or **Grilled Shrimp** (salad

plus). Please specify if you have any special

\$ _____ Total enclosed. Please make checks payable to: **Northeast Heather Society**

Registration deadline is August 30. Please send registration form and payment to: Judy Doyle, 85 Maynard Road, Brooklyn, CT 06234. Phone (860) 774-4250, fax is same. EMail: radoyl@snet.net

What's New?

Lectures

If you're going to be on Martha's Vineyard in July, be sure to catch Irish author and heather expert E. Charles Nelson's lecture series at Polly Hill Arboretum in West Tisbury. On July 25 he will speak on "The Burren— Ireland's Unique Limestone Flora and Geological Formation," and on July 29 he will give a talk about "Buma's Icy Mountain." Call the arboretum at (508) 693-9426 for tickets and details.

Get Well Wishes

Edna Mackinnon of Waquoit Heather Nursery, Box 3214, Waquoit, MA is recovering well from heart surgery this spring.

Publications

A lovely garden we will visit as part of the September conference tour is featured on page 70 of the June issue of "Country Living Gardener." Check your magazine racks for a sneak preview. It is across the road from our Saturday evening restaurant. ●

Summer Meeting Saturday, July 21 North Conway, NH 11 a.m.

Karis "Kay" Beggs and her husband are hosting NEHS members for a summer picnic at their home.

The summer meeting is traditionally an event without agenda, when members have a chance to meet others, kick back and enjoy the beautiful view.

This time, the view is of Kay's heath and heather garden, with many unusual cultivars from Scotland.

Our hosts will provide beverages and potato salad; bring your own picnic lunch, and we'll adjourn to the sunporch in case it rains.

Kay would appreciate your RSVP ahead of time. Please write a note to her at PO Box 2293, Conway, NH 03838, call (603) 447-6203, or email abeggs@landmarknet.net by July 16.

Directions:

Take Interstate 95 north to Portsmouth, NH then Rt. 16 toward North Conway.

When you get to Conway, stay on Rt. 16 and go past the Kancamagus Trail, the high school and the Majestic Theater. At the top of the hill, go right at the traffic light and you'll be on Rt. 153 south.

Travel a half mile, and go right at the vee, onto Tasker Hill Rd. You'll go past the American Legion Hall, straight up the hill about 2.2 miles (and don't turn anywhere.)

Watch on the left for Spigot Hill Road; it is a crescent, so if you miss the first entrance you can just take the second one. Kay's house is #9 Spigot Hill Road, the only one with a concrete driveway.

The drive time is about 2½ hours from Boston. •

Northeast Heather Society

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