

Plantline

April 2016

A Newsletter from Carlton Plants LLC

A New Means of Propagation

By Michael Anderson and Stacia Lynde

The lifeblood of the nursery industry is arguably the art and science of propagation. Propagation is the nursery industry's "nursery" wherein new life takes form to provide future trees and shrubs. Those associated with it; those bitten by the propagation bug may never entirely recover. The fascination of propagating plants by seeds, cuttings and grafting provides years of interest, reward and sometimes frustration.



Propagation facility

The last thirty-five years have seen great changes in the propagation department at Carlton Plants. Where there once stood one lonely greenhouse there now are now twenty-nine, total. The seedbeds have grown from a couple acres to now about thirty-five. A large warehouse and cold storage facility was built to provide space for the grading and storage of over five million tissue culture liners, softwood cuttings, seedlings, layers and hardwood cuttings each year.

About five years ago, we were ready for even more growth! For years, we had been outsourcing some of our propagation to various tissue culture labs. It just made sense to gain more control of inventories and quality so our very own tissue culture lab was born. We started small, in a

lunchroom, only receiving and acclimating around 35,000 plantlets. With this small-scale lab, we were able to prove what we were capable of and expand numbers, as well as selections. We are now receiving over 525,000 plantlets from the laboratory to acclimate in the greenhouses. Not only do we grow for our own field needs, we also offer some of these same selections to the trade.

We start receiving material from the lab to the acclimation houses in February. Only a select few items are brought in at this time. The majority of our material (about half of the production schedule) is received during the months of May and June. This achieves the desired size and quality we typically like for our own fields as well as the needs of our customers. Two types of plantlets are received from the lab. The first is unrooted plantlets, also called microcuttings. Historically these are plants that root consistently on their own. As growers, we typically prefer microcuttings when possible. They come to the acclimation houses free of agar,



Microcuttings

usually wrapped in wet paper towels and then tucked into a zip lock bag. They are much less delicate and can be directly stuck into our peat/pumice media with greater speed and success, not to mention they are usually cheaper.



A small green frog
On a big brown log;
A black and yellow bee
In a little green tree;
A red and yellow snake
By a blue-green lake,
All sat and listened
To red bird sing,
"Wake up everybody,
It's spring, it's spring!"

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Rooters

The second type of plantlet is what we call “Rooted Plantlets” or for short “Rooters”. When “Rooters” come into the greenhouse, we must perform some light trimming of the roots and delicate placement into the pot with the same media we use for the microcuttings. Since they take a little more time in the lab, their price point is a touch higher.



Unrooted Plantlets

Once in the greenhouse, tissue culture is acclimated on benches or an area that is conducive to good growing. Bottom heat is supplied through Pex-Tubing run over the insulated benches. Flats of both microcuttings and rooters are set on top of the Pex Tubing so the bottom heat is efficiently utilized for root promotion. Remay tents are set over the benches to prevent the plant material from drying out during this first stage of acclimation. Mist lines run under the tents on center with the plants and run on a manually controlled Phytotronics clock. This allows proper maintenance of humidity until the plants stomata's are functioning.



Air pruning container

Deciding on which pot works best for your production needs is like trying to pick the perfect Christmas tree, so many choices, but which one fits in the living room corner the best? Each container has its own benefit to production. A container can impact the final size of the liner, the root system, the labor involved with planting and much more. A majority of our production for planting and for sales is now done in an air-pruning container

to develop what we feel is the best root system.

After the plants have proper root development, we begin raising the tents and reducing the mist intervals. In conjunction with the raising of the tents, fertilized water is injected into the overhead lines. If plant material cannot be moved outside, it is instead moved to the floor of a protected hoop house. When the time is right, the plants can be moved outside. If they are left in a greenhouse too long, they may grow tall and leggy and not achieve proper caliper. This is important, especially in the development of rootstocks for budding.

At the end of the season, crops are graded on belts, plants are sorted by height, labeled and the culls discarded.

They are now ready for planting or shipping.

Ultimately, the care exercised in the first stages of a plants life plays a strong part in the strength, quality and performance of the finished products as well as the long-term well-being in the customer's landscape. Exceptional liners provide the opportunity for excellence at all stages. If you are interested in purchasing either microcuttings, rooters or acclimated tissue culture liners, please contact your Carlton Field Representative or visit our website at carltonplants.com under the availability, Rootstocks and Liners section.



**DORMANT PLANT MATERIAL IS STILL AVAILABLE!
OUR COLD STORAGE FACILITY WILL CONTINUE
TO RUN IN TO JUNE.**

Protecting Our Soil

By Tyler Hoskins

To grow any agricultural crop in a field setting, we depend on several natural resources, with soil being on the top of the list. Take a quick read through any soil text and you'll learn that soil is comprised of mineral components (sand, silt, and clay), water, air and organic matter. However, soil is more than just the sum of its components; it's dynamic, very much alive, and is the essence of our livelihoods as farmers. Soil is home to a wide range of bacteria, fungi, insects, mammals, and plants – all of which work together to create a living ecosystem.



Perennial grasses lining roadways near production areas (above) and along ditches (below).

Soil is valuable, partially because it develops so slowly. Soil may form in as little as 100 years in tropical climates and many hundreds of years in more temperate climates, and never truly stops forming. But, despite how long soil takes to form, it can diminish very quickly in both quantity and quality, if not managed with care.

When a natural ecosystem such as forest, brush, or grassland is converted to farmland, there are substantial changes to the soil that can lead to problems. For example, the removal of native plants can leave the soil exposed to wind and rain and is now prone to erosion. Also, soil organic matter can break down under conventional tillage practices and can disrupt the life cycles of fungi, bacteria, and insects living below the soil surface.

Of course, these changes are necessary since we need to manipulate the soil environment to plant, grow, and harvest crops, especially in our case as a bareroot tree nursery. But, there are ways to work with the land and create a new ecosystem that allows room for farming activities and maintains the health of the soil for the long haul. Cover crops are one tool in the toolbox that can be used to boost the health of the farm ecosystem on several fronts. There

are many types of cover crops, each with its own specific attributes.

Perennial grasses are an excellent choice for areas that are not a part of the regular production cycle, but are still prone to erosion, such as ditches and fence lines. If water flows over these areas during rainfall, the roots will help to stabilize the soil and the leaf blades help to slow the movement of water, allowing time for soil particles to settle out of the water. Maintenance is pretty straight forward, requiring seasonal mowing to prevent the grass from setting seed and possibly a broadleaf herbicide to keep any weeds in check.

Another opportunity to protect the soil is when fields are out of production. During this time, fields are often worked to modify soil structure, incorporate amendments, break up compacted soil, and prepare a field for planting. Following tillage, the soil is loose and can be carried away by surface water rather easily, especially on sloped fields.



Sudangrass in a field currently out of production after the first frost.

Similar to how perennial grasses can be used to improve erosion in ditches, cover crops can be used in whole fields to reduce erosion, but can also boost the health of the soil in a variety of ways. For example, Sudangrass (*Sorghum bicolor*) will produce a lot of biomass and can be incorporated into the soil to boost organic matter, but will also compete with and suppress weeds. Cereals, such as wheat or barley are excellent at scavenging and storing nutrients in a stable form that can be later used by the cash crop.



Poco Barley along the headlands of an erosion prone field.

Legumes will harvest nitrogen from the atmosphere and can be used to boost nitrogen levels in the soil. Lastly, Brassicas produce taproots that can help to bring nutrients from deep layers in the soil to the surface and can help penetrate compacted soil. Each of these covers can be used to reduce erosion, but can also be used to improve soil quality in a targeted way, based on the specific needs of the farm.

Erosion can also be a problem during the regular production cycle, between crop rows. Using covers to reduce erosion between rows is a little trickier, but can have a meaningful impact. Not every cover works well for this either. An ideal cover for between crop rows needs to be easy to manage and not create any serious complications for the cash crop. We have found excellent results with Poco Barley (*Hordeum vulgare* 'Poco') both between rows and across the headlands of erosion prone fields. Poco Barley is a dwarf variety that is small enough to not overtake the cash crop and requires next to no



Poco Barley between crop rows in an erosion prone field.

maintenance until it needs to be sprayed out before setting seed.

These practices are a part of managing our farms ecosystem, but they make a huge difference in maintaining the quality of the soil that we depend on to sustain our business. 🌱

CONGRATULATIONS GARY!

A NEW BEGINNING.....



Join all of us at Carlton Plants to wish Gary Eggenberger a happy retirement. He has served as our upper Illinois, Indiana and Michigan field representative for the past eight years. Over the years, Gary's dedication to all his accounts has been impeccable. He comes from the "old school" way of servicing all the people he comes in contact with, a way which we should all strive to achieve. Even though his time with Carlton Plants has been short, he has had a big impact on all of us. Gary has been in the industry for over 33 years, with the bulk of his career at the former Sherman Nursery in Iowa. He will be sharing his retirement with his wife Jeanne who just concluded her long career as a nurse. They look forward to watching their grandkids sports teams, spending time with family and tough games of two-handed cribbage. Gary, thanks for all you have done, you will be missed but not forgotten.

Gary's replacement in upper Illinois is Tim Wommack. Tim already covers southern Illinois for Carlton Plants so the transition will be smooth. Tim has a good pulse of the industry and a long-standing record of great service. Tim can be reached at 800-489-8733.

Adam McClanahan will cover the Indiana and Michigan states. Adam has been with Carlton for 7 years and has good working knowledge of plants and growing practices. Adam can be reached at 800-442-1453.

Gary and Jeanne, enjoy your retirement, you have earned it! 🌱

2016 - 2017 NEW VARIETIES

TREES

- Betula papyrifera* Renaissance Oasis® 'Oenci'
- Caragana arborescens* 'Green Spire' 'Jebfarb'
- Cercidiphyllum japonicum* 'Rotfuchs' Red Fox
- Cornus x Venus*® 'KN30-8'
- Hydrangea paniculata* 'Fire and Ice' 'Wim's Red'
- Prunus incisa* Lemon Splash® 'FPMSPL'
- Quercus palustris* Pacific Brilliance® 'PWJRO8'

SHRUBS

- Berberis thunbergii* 'Admiration'
- Calycanthus x raulstonii* 'Hartlage Wine'
- Cotinus* Golden Spirit®
- Cotinus x Grace*
- Ilex verticillata* 'Jim Dandy'
- Syringa vulgaris* Tiny Dancer™ 'Elsdancer'
- Syringa x Josee*

POTTED LINERS

- Corylus avellana* 'Felix'
- Corylus avellana* 'McDonald'
- Corylus avellana* 'Theta'
- Corylus avellana* 'Wepster'
- Corylus avellana* 'York'
- Pyrus* OHxF #97
- Pyrus* OHxF #333
- Vaccinium corymbosum* 'Jersey'
- Vaccinium corymbosum* 'Pink Lemonade'
- Vaccinium corymbosum* 'Sunshine Blue'



Lemon Splash



Lemon Splash



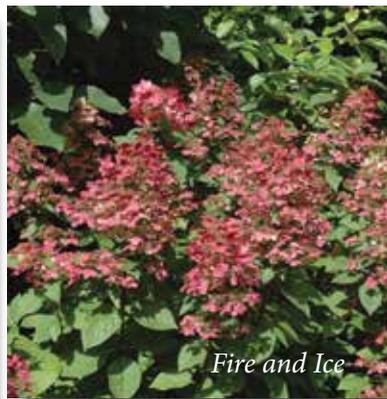
Venus



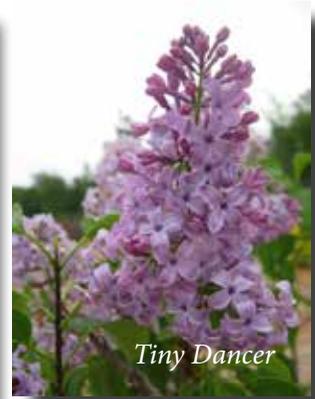
Pacific Brilliance



Hartlage Wine



Fire and Ice



Tiny Dancer



Admiration



Corylus Potted Liners

Carlton Plants LLC Field Reps



CA,OR,WA,British Columbia
Joe Dixon, Hort. Sales & Serv. LLC
jdixoncp@frontier.com
Ph: 800-442-1459
Fx: 800-442-1460



AZ,CO,ID,MT,NM,UT,WY,Alberta
Steve Carlson
scarlson@carltonplants.com
Ph: 800-442-1458
Fx: 800-442-1462



IA,MN,ND,NE,SD,WI,Manitoba
Gary Bills
gbills@carltonplants.com
Ph: 800-442-1457
Fx: 888-909-1312



AR,IL,KS,MO,OK,TX
Tim Wommack Nursery Sales LLC
timwommack@sbcglobal.net
Ph: 800-489-8733
Fx: 314-721-0899



CT,DE,MA,MD,NJ,RI,Long Island NY
Ed Gregan
egregan@carltonplants.com
Ph: 866-991-8307
Fx: 866-991-8308



KY,IN,MI,OH,WV
Adam McClanahan
amclanahan@carltonplants.com
Ph: 800-442-1453
Fx: 800-442-1454



ME,NH,NY,PA,VT,Nova Scotia,
Ontario, Quebec
Will Steller
wsteller@carltonplants.com
Ph: 800-865-6484
Fx: 800-865-6489



AL,FL,GA,NC,SC,TN,VA
Dennis Niemeyer
dennis@ncwildflower.com
Ph: 800-525-3597
Fx: 800-525-3598

Welcome Rachele and Heather



Carlton Plants welcomes Rachele Stahl to the sales team. She will support our outside field representatives, Tim Wommack, Dennis Niemeyer and Adam

McClanahan and the customers in their three territories. Rachele is a local farm girl, having grown up right here in Dayton and graduating from Dayton High. She and her family enjoy camping, riding motorcycles or anything that goes fast! Rachele brings a positive energy everyday both in the office and on the phones. You can reach her at rstahl@carltonplants.com or the main office at extension 116.



Heather Rose joins our sales team at Carlton Plants, supporting Gary Bills, Ed Gregan and their customers. She comes to us from years in the lumber business where she spent her

time servicing customer accounts and working on the books. Heather is rarely seen without her favorite coffee drink, mocha with caramel, two a day! In her free time she enjoys cooking, antique shopping and rooting for our very own Portland Trail Blazers. She has made great friends with our local office cat Bobbi. Heather has a keen eye for detail and loves helping people. You can reach her at hrose@carltonplants.com or the main office at extension 120.



CARLTON PLANTS LLC

14301 SE Wallace Rd

PO Box 398, Dayton, Oregon 97114-0398

Phone (503) 868-7971 • (800) 398-8733

FAX (800) 442-1452