

to be satisfied with your own operation and the plants you produce.

MY METHOD OF GROUND COVER PROPAGATION

REX MCDONALD

McDonald's Nursery

Route 1

Cameron, North Carolina 28326

McDonald's Nursery is located near Cameron, North Carolina, a small town in the central part of the state. It is in zone 8, which has an annual minimum temperature of 10 to 20°F and high temperatures of approximately 100°F. The nursery was started in 1972 as a wholesale operation specializing in groundcovers, and it is a little more than an acre in size.

In recent years, plants which could be used in special locations or to take the place of grass have been in demand due to a desire to reduce maintenance costs. Landscape architects are specifying groundcovers for problem areas such as banks, dense shade, or other unusual areas.

As the nursery is a small one and has no full time workers other than myself, any labor-saving techniques that can be used in a small scale operation must be used. Perhaps the best example of such a labor-saving device is a machine which cuts vine-like plants such as ivy and euonymus into cuttings of 3¼ inch long. This machine has 2 electric motors. One powers 11 saws spaced 3¼ inch apart at 10,000 rpm, and the second, a slow speed motor, turns 2 sets of belts in such a way that the plant material is slowly fed into the gang saws and the cuttings then dumped at the rear of the machine. This machine can make around 10,000 cuttings in about 15 minutes, provide the material has small stems and is fed into the machine rapidly. It is important that the material is fed into the machine so that it is perfectly straight and perpendicular to the saw. This machine was developed by Ernest Cuzzocreo of Orange, Connecticut, in cooperation with the University of Connecticut.

Another labor-saving technique that was recently started here is to market plants as rooted cuttings, bare-root, or as divisions instead of attempting to pot each plant in an individual pot as was practiced until last year. These practices allow more plants to be produced in a shorter time and in a smaller area. Since an established root system is preferred by some landscapers, many plants must still be produced in individual pots

However, we hope to reduce the number from our present 50% of total production.

At present, cultivars of the following species are grown:

<i>Ajuga reptans</i>	4 cultivars
<i>Euonymus fortunei</i>	1 cultivar
<i>Hedera helix</i>	4 cultivars
<i>Liriope</i>	3 cultivars
<i>Ophiopogon</i>	1 cultivar
<i>Pachysandra</i>	1 cultivar
<i>Phlox subulata</i>	5 cultivars
<i>Vinca minor</i>	1 cultivar
<i>Cortaderia selloana</i>	1 cultivar

Euonymus, ivy, *pachysandra*, and *phlox* are all propagated from cuttings. This propagation begins in outdoor beds in early May and continues until September. *Euonymus fortunei* 'Coloratai' taken in August is well-rooted and has good new growth by October.

The beds are 60 feet long and 5 feet wide. The sides are constructed of 4 inch concrete blocks (2 rows high). The bed has 4 inches of coarse gravel at the base covered by 2 inches of coarse sand over which the rooting medium of 50% perlite and 50% pine bark is placed about 4 to 6 inches deep. The pine bark will pass through a ¼ inch screen. Pine bark is used in place of peat as it is readily available in this area and seems to give better drainage and better root development. Two rows of alternating mist nozzles are spaced 6 inches from the sides of the bed. The nozzles are Flora-mist type spaced 30 inches apart in each row and about 12 inches above the rooting medium. A misting interval of 6 seconds every 2 minutes is used in early summer for ivy, *Hedera helix*, *Euonymus*, and *Pachysandra*. In late summer an interval of 6 seconds every 6 minutes is used for the *phlox* as it rots under moist conditions.

The beds are sterilized with methyl bromide in the early spring and each crop of cuttings is drenched with fermete. These beds are located in full sun, which seems to make cuttings hardier when they are potted and placed under field conditions in beds. Additional 4-inch blocks are placed on sides around the top of the bed to prevent the wind from blowing the mist away from the plants.

Ivy and *euonymus*, which are sold as rooted cuttings, are propagated in trays containing a mixture of 3 parts pine bark and 1 part fine sand (builder's sand) with 12 lb. lime and 6 lb. supersphosphate added per cu yd of mix. These plants are placed in a ground bed with one line of mist nozzles running down the center of the bed. The nozzles are spaced 3 ft apart on risers that are 15 inches above the trays. A mist interval of 10 seconds every

6 minutes is used. The bed is covered with sections of welded wire to form a quonset, which is then covered with opaque plastic. Holes are cut in each end of the tent and over each mist nozzle for ventilation. This arrangement also enables the nozzles to be checked more easily. Some nurseries use clear plastic but in our area it allows too much light and too much heat buildup for the plants to root satisfactorily.

We plan to try producing *Ajuga* 'Burgandy Glow' in trays and market it as we do euonymus and ivy. *Ajuga*, *liriope*, and mondo grass (*Ophiopogon*) are propagated by divisions. *Vinca* is propagated from rooted plants taken out of beds. It is put into 3 inch pots and is salable in about 6 weeks. Pampas grass is propagated by seed

Our medium for most potted plants is a standard mixture of 3 parts well-rotted pine bark and 1 part fine sand (builder's sand) to which 10 lbs of Pro-Start, 7 lbs 14-14-14 Osmocote, and 12 lbs dolomitic lime/yd³ is added. Pro-Start is a potting soil fertilizer mix containing gypsum, superphosphate, urea formaldehyde, potassium nitrate and micronutrients. The 8 to 9 month Osmocote formulation is used for *liriope* and mondo grass.

After potting, the plants are placed on black plastic in rows in the nursery. These newly-potted plants are watered lightly 3 or 4 times daily for 2 days after which they receive water daily from an overhead irrigation system. All plants are topdressed with 38% urea in June. Weeds are controlled with Ronstar (oxadiazon, Rhone-Poulenc), 2 lbs/1,000 ft², on all plants except *ajuga*. I plan to use Treflan (trifluralin, Elanco) in conjunction with Ronstar next year to control spotted spurge. Walkways are kept in grass and are mowed. We use Roundup (glyphosate, Monsanto) to maintain weed-free borders around all plant areas.

Winter protection must be provided for ivy, *ajuga*, and mondo grass. This protection is accomplished by using ¼ inch thick microfoam on the ivy and mondo and by building a small quonset structure over the *ajuga* beds which are covered and sealed with opaque plastic in late November.

I attempt to produce and sell plants in 6 months or less, except for *liriope* and mondo which take longer. It is possible to do so by giving careful attention to the details I have described.