

Growing in a Cinder Block  
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*8 month old oak in block bag. Most trees do not require staking if strong liners are used and adequate space is provided for top growth.*

Tops of young trees generally grow well in containers; however, stopping roots from circling and keeping them upright as they grow becomes an increasing problem. Each time a plastic container blows over or the side of a black plastic container is exposed to direct sunlight, the roots on the exposed side of the container are killed. In a study to determine these effects, the sides of containers were exposed for precise times. Shortest exposure was 15 minutes, which was sufficient to kill all roots on the exposed side of the black container.

The idea occurred that by growing tree seedlings in the cavity of a cinder block with a liner made of fabric, they would not blow over yet could be easily removed. Roots would be insulated from heat and tree seedlings would be spaced for good top development. I had tried growing in cinder blocks without a liner before and found growth to be excellent, but removal of the tree was so difficult I dropped the idea.

Initially, four cinder blocks were used with a cavity liner made of knit fabric with precise openings for root pruning. The eight oak trees planted in early August 1996 did well. For 1997, nearly 1000 cinder blocks with 2000 cavities 5 by 5.5 by 8 inches deep were set up for a much more extensive study. The blocks were placed half on 6-mil poly and half on 6-ounce Typar, which lets water through yet prevents root growth into the soil below. Black 6-ounce Typar fabric worked best.



*Maples in cinder block bags spaced for stronger stem development.*

Bags studied were made of a) special knit fabric for root pruning, b) 3-ounce Typar, c) 6-ounce Typar, d) 5-ounce spun-bonded weed barrier fabric. Bags were filled with a mix of pine bark, peat and sand, 3:1:1 by volume, with Osmocote and Micromax micronutrients. Knit fabric bags worked best.

Tree seedling liners of shumard and bur oak, lacebark elm, Chinese pistache, loblolly pine, catalpa, redbud, bald cypress, and Shantung maple were grown to a height of 8-12 inches in original RootMaker® propagation containers before being shifted to the block bags in late June 1997. Planting was done using a cone-shaped dibble that fits the RootMaker® shape. Watering was via overhead sprinklers.



*Root system of maple in 5" bag. Seedling is 8 months old from seed germination.*

Growth of all species was excellent. Overall growth, stem diameter and branching were superior to all previous techniques tried, particularly with the knit fabric bags. Root systems were excellent if grown in the knit fabric.



3+ month's growth (late June to mid Oct.) following transplanting of 8 to 12" seedlings into 5" bags. Background is four feet tall. (Left to right) Willow oak, shumard oak, Chinese pistache, and loblolly pine.

Trees were 3-5 feet tall by mid-October 1997 and were transplanted into the field for further evaluation. The fabric was removed by cutting down one side.

#### Advantages over plastic:

This cinder block technique provides many advantages over conventional plastic pots:

1. Plants cannot blow over.
2. Spacing is 8 inches on centers with standard 8 by 8 by 16 inch blocks in solid grid. Blocks may be spaced more to allow for greater top growth.
3. Roots are insulated from summer's heat.
4. Roots are sufficiently insulated from cold in USDA Hardiness Zones 8 and 9 but may need some additional protection in Zone 7.
5. Moisture swing from wet to dry to wet after irrigation is slowed by the water absorption and re-release by the block.
6. Aeration to the root system is improved.
7. Plants are easily removed at any time. Knit fabric is easy to remove after one growing season.
8. Setup cost is moderate, but longevity is indefinite.
9. Roots in bags made of knit fabric did not circle.
10. Roots were very fibrous and primed for transplanting by early fall.

Many species of trees, shrubs, and perennials have now been grown in the cinder block with knit fabric liners and all have grown well.

Fill 5 inch knit bags with a mix of three parts ground pine bark, one part Canadian peat and one part sand, amended with 8 pounds of Osmocote 18-6-12 plus 4 pounds of Osmocote 19-6-12, plus 1.5 pounds of Micromax per cubic yard and the appropriate amount of

dolomite as dictated by irrigation water chemistry. Using this growth medium and nutrition one growing season will typically produce tree seedlings four to five feet tall with good stem strength and branching and without staking. Do not grow most species of trees more than one growing season in the 5 inch knit bags. If a larger liner is desired, use the 8 inch knit bag that fits a 9-inch, single cavity, corner block. Or, use 8 inch knit bags with the same soilless mix but place in well-drained field soil. In more severe climates, the 5 or 8 inch knit bags work well when properly spaced in most field soils and will over-winter with no additional protection.



Bald cypress after one growing season in 5" knit bag.

The latest modification of the cinder block system is the addition of RootTrapper® fabric. This white poly laminated on black fabric material traps root tips when they come in contact with the sidewall and stimulates root branching. The only opportunity for roots to escape is at the seam across the bottom and up one side. Experience to date has been that no more than 1 or 2 % of the roots escape. Fabric removal on aggressive rooted species such as catalpa and elm is easier than with the knit fabric material. The RootTrapper® material does not allow water to move from the growth medium into the block and back. However, water is only allowed to exit slowly through the stitching, thus water use appears to be similar with the knit bags. Since this fabric is impervious to moisture loss, once the trees are pulled from the cinder blocks they are ready to ship without further attention.

Seedlings started in RootMaker®II propagation containers and shifted into 5 or 8 inch knit or RootTrapper® bags in cinder blocks or 5 or 8 inch knit bags in good field soil, result in trees after one growing season that are typically 4 to 5 feet tall with stout stems and excellent root systems ready for the next step. Knit cinder block bags are available in 5 and 8 inch sizes from RootMaker® Products Co., Huntsville, Alabama. 1-800-824-3941 or on the web at [www.rootmaker.com](http://www.rootmaker.com).