

BALL LACING: AN EXAMINATION OF THE METHODS

by R. Christian Cash

Abstract. This paper considers the various ball lacing techniques utilized when transplanting plants, problems associated with these techniques, and suggests some recommendations for changing the lacing technique to avoid potential problems. The principal area addressed is the top lacing of small balls and drum-laced balls.

Résumé. Cet article traite des techniques d'attaches variées des mottes utilisées dans la transplantation des plantes, des problèmes associés à ces techniques et suggère quelques recommandations pour changer ces techniques pour éviter des problèmes éventuels. La zone principale concernée est le haut de l'attache de petites mottes et les mottes attachées en tambour.

The most widely used methods of lacing plant balls involve the wrapping of the top laces around the trunk of the tree or shrub. Questions that may be asked about these methods are: "Are these the best methods of lacing plants?" and "Do these methods cause damage to plants in any way?". The work of Dr. Alex Shigo with branch pruning has shown many that just because we have utilized old procedures does not mean these are the best or most proper procedures. Methods of plant ball lacing have been based upon traditional techniques with minor consideration given to the possible effects on plant survival and growth.

The reason top lacing of balled plants is in question is that the technique may be causing damage which can be easily avoided. The damage exhibited may be in the form of dieback, trunk or root rot, or excessive injury from transplanting.

Some of the most debilitating diseases of trees and shrubs are root and stem rots. Many of the losses result from trunk injuries and cankers near the base of plants. These losses may result from planting in wet sites, planting too deeply, or mechanical wounding of plants.

In many of the diseases associated with these losses, the entry of the disease organisms is dependent upon plant stress and often an actual wound. The possibility exists that the mechanical wounding of trunks by the commonly practiced trunk lace method is providing portals of entry for disease organisms.

Most burlap and rope or twine used to lace plants is coarse and sharp. These materials have

the ability to cut, rip, or crush thin bark if not used with care. Considering that many plants are moved in the spring of the year when the bark is soft and slips very easily, the potential for bark damage exists. By wrapping a sharp, coarse rope or twine around this soft stem and pulling tightly to hold a soil ball together, one might be wounding, if not potentially girdling, the trunk of the plant.

This potential for damage by ropes is recognized by nurserymen and many take steps to prevent such damage. Most nurserymen questioned with regard to ball lacing indicate that they protect the stems of plants from rope damage by wrapping the stems with burlap. This is commonly the case but often plants can be found in nurseries with no burlap wrapping on the stems or with laces that have accidentally been placed directly on the stem above the burlap wrapping.

A moist dark environment is conducive for the growth and proliferation of fungus diseases. A burlap wrap will provide this condition, especially after a rain or watering of plant balls. Also, if you examine the bark under these burlap wraps, you may find stems wounded from shovel nicks, or bark injury from the rope lacing.

Often when balled plants are planted, the trunk laces are not cut or removed. This may result in girdling of the stem and death of the plant. When plants are laced with nylon or plastic ropes this will most certainly be the case.

In 1943 and 1958 the guide to *Transplanting of Trees and Shrubs in Northeastern and North Central United States* (2) was published with the inclusion of ball lacing recommendations. This guide was published jointly by the National Arborists Association and the National Shade Tree Conference. Other guidelines were published in 1981 and revised in 1984 by Himelick in the *Tree and Shrub Transplanting Manual* (1). Neither of the publications recommended ball lacing around the trunk except for small soil balls. In discussions with numerous nurserymen, the primary reason given for utilizing the trunk lace method was that it helps to support the ball and prevents it from falling apart.

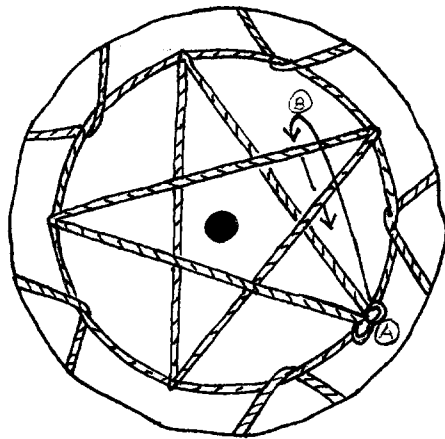


Figure 1. Top of Drum Lace as described in *Tree and Shrub Transplanting Manual (1)*

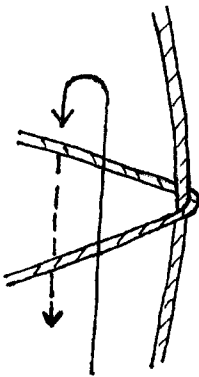


Figure 2.

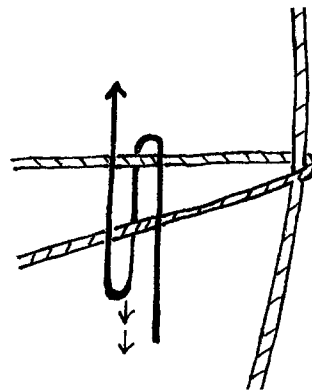


Figure 3.

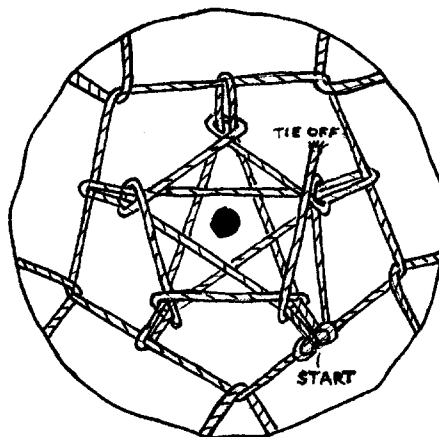


Figure 4. Modification of Top of Drum Lace to improve ball lace tightening.

Those individuals that utilize the top lace which avoids trunk attachment indicate few problems with soil ball collapse. The apparent reason for few ball failures with this method is that the lacing ropes are completely supporting the soil ball and are tightened against themselves. This produces a uniform tightening of the ball lacing.

Transporting of balled and burlapped plants subjects the tops of the plants to movement from side to side. This activity with trunk-laced plants may cause loosening of the laces due to rope stretching. If the ropes stretch excessively, the ball may collapse prior to planting. The plants that are top laced without trunk attachment are not as susceptible to this type of lace stretching and thus remain intact with top movement during transport. If the lace is loosely made from the onset, the balls of either type of lacing will fail.

An Alternative Ball Lacing Technique

Recommendations can be made to improve the ball lacing procedures. These recommendations will result in 1) avoiding the wrapping of laces around stems and 2) providing for a tighter final lace.

The recommendation for the lacing of small balls given in the transplanting Manual (1) shows the initial tying of the rope or twine to the plant trunk. To modify this lace, one could simply make an initial loop and tie to that loop after the first lace is wrapped around the plant.

This method allows for the tightening of the lace at the loop and thus avoids damage to the stem.

A second recommendation is for the drum lace method recommended for larger plant balls. A modification of suggested procedure will result in a tighter lace making the ball less susceptible to falling apart. A tighter ball lace is desired and this may be accomplished by a simple step. The procedure involves completing the lace as described in the Transplanting Manual (1). This will result in a star shaped pattern on the top of the ball (Figure 1). At this stage an extra length of rope is secured to the outside top rope lace (Fig. 1 - Point A). After securing the rope, find the two laces that

form the closest point of the star shaped pattern of the top lace (Fig. 1 - Point B). Pass the rope over these laces and pull back under both. After this is accomplished, pull back on the rope to tighten the lace (Figure 2). Next, pull the rope over the laces that were tightened and move ahead to pull together the next laces of the star (Figure 3). This should result in the top and bottom laces being pulled up tightly. This procedure is followed until completely circling the ball. All of the points of the original star pattern will have been gathered together and the lace is completed with significant tightening (Figure 4).

Summary

This paper has outlined some of the potential problems associated with the standard methods of ball lacing. Many of the lacing techniques employ tying a rope around the trunk of the plant. If a plant has been 'properly' laced, the tension created on the ropes is considerable. The force exerted on the bark can cause cell damage. If this lace remains on the plant at planting, girdling will result. This damage can easily be avoided by utilizing a different lace. The lace modifications suggested require limited time to complete with little additional rope required. Thus the cost of adoption of this revised method would be minimal. Some expense may be incurred for the proper training with regard to the new tying procedures. Utilizing this method may be worth while if plant survival can be improved.

Literature Cited

1. Himelick, E.B. 1981. Tree and Shrub Transplanting Manual. International Society of Arboriculture, P.O. Box 908, Urbana, IL 61801. pp. 14-28.
2. National Shade Tree Conference and National Arborist Association. 1958. Transplanting of Trees and Shrubs in the Northeastern and North Central United States. National Shade Tree Conference (Now: International Society of Arboriculture)

*Plant Science Department
State University of New York
Cobleskill, New York 12043*